



Meridium APM Metrics and Scorecards

V3.6.1.6.0



Meridium APM Metrics and Scorecards

V3.6.1.6.0

© 2017 General Electric Company.

GE, the GE Monogram, and Predix are either registered trademarks or trademarks of General Electric Company. All other trademarks are the property of their respective owners.

This document may contain Confidential/Proprietary information of General Electric Company and/or its suppliers or vendors. Distribution or reproduction is prohibited without permission.

THIS DOCUMENT AND ITS CONTENTS ARE PROVIDED "AS IS," WITH NO REPRESENTATION OR WARRANTIES OF ANY KIND, WHETHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF DESIGN, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE. ALL OTHER LIABILITY ARISING FROM RELIANCE UPON ANY INFORMATION CONTAINED HEREIN IS EXPRESSLY DISCLAIMED.

Access to and use of the software described in this document is conditioned on acceptance of the End User License Agreement and compliance with its terms.

About This Document

This file is provided so that you can easily print this section of the Meridium APM Help system.

You should, however, use the Help system instead of a printed document. This is because the Help system provides hyperlinks that will assist you in easily locating the related instructions that you need. Such links are not available in a print document format.

The Meridium APM Help system can be accessed within Meridium APM itself or via the Meridium APM Documentation Website (<https://www.meridium.com/secure/documentation/WebHelp/Home.htm>).

 **Note:** If you do not have access to the Meridium APM Documentation Website, contact GE Global Support (<https://www.ge.com/digital/asset-performance-management>).

Table of Contents

Meridium APM Metrics and Scorecards	1
Copyright and Legal	2
About This Document	3
Table of Contents	4
Overview of Metrics and Scorecards	12
Metrics and Scorecards System Requirements	13
What Are Cubes?	15
Overview of the Metrics and Scorecards Data Model	17
Metrics and Scorecards Data Model	18
About Security in Metrics and Scorecards	19
Accessing the Metrics and Scorecards Start Page	20
Aspects of the Metrics and Scorecards Start Page	21
First-Time Deployment Workflow	22
Upgrade or Update Metrics and Scorecards to V3.6.1.6.0	24
Installing SQL Server Analysis Services on the Sever	26
Migrating SQL Server Cubes	27
Creating the Analysis Services Database, Data Source, and Cubes	29
Granting Permissions to Cubes in Analysis Services	30
Configuring Permissions Necessary for KPI Updates	31
Defining Time Levels for KPIs	32
Providing Access from the Drill Through Feature to the Record Manager	33
Configuring a Cube for Usage Metrics Tracking	34
How Are Cubes Used by Metrics and Scorecards?	35
Accessing the Metrics Manager Administration Page	36
Overview of the Metrics Manager Administration Page	37
Metrics Manager Cube Workspace	38
Cube Tasks Menu	39
Creating an Analysis Services Cube Record	40

Modifying the Properties of an Analysis Services Cube Record	44
Deleting an Analysis Services Cube Record	48
About Managing Cube Privileges	49
Accessing the Manage Cube Privileges Window	50
Granting Access to Analysis Services Cube Records	51
Deleting Cube Privileges	52
About Updating KPIs Automatically	53
Creating the Master Scheduled Item	54
About Scheduling Cubes for Processing	58
About Full Processing and Incremental Processing	59
About KPI Privileges	60
Granting Access Rights to a KPI	61
Revoking Access Rights to a KPI	63
About Scorecard Privileges	64
Granting Access to a Scorecard	65
Revoking Access Rights to a Scorecard	67
Metrics and Scorecards Security Groups	69
About Navigating the Metrics and Scorecards Module	71
Using the Metrics and Scorecards Site Map	72
Overview of Metric Views	73
Creating a New Metric View	74
Opening an Existing Metric View	80
Aspects of the Results for <Metric View> Page	82
Viewer Tasks Menu	84
Common Tasks Menu	85
Overview of the Table Tab	86
About the Filter Options	90
Adding a Filter to the Table	93
Modifying a Filter	94
Removing a Filter	95

Sorting the Table	96
Overview of the Graph Tab	97
About the Graph Toolbar	98
About the Drill Down and Drill Up Features	99
Drilling Down Into a Metric View	101
Drilling Up in a Metric View	102
Modifying the Title of the Graph	103
About Right and Left Y-Axis Scales	104
Choosing the Right or Left Y-Axis Scale for a Measure	106
About the Drill Through Feature	108
Accessing the Drill Through Page	109
Aspects of the Drill Through Page	111
Drill Through Tasks Menu	113
Common Tasks Menu	114
About Modifying the Format for Numeric Values on the Drill Through Page	115
Aspects of the Drill Through Results Number Format Dialog Box	116
Modifying the Format For All Numeric Values Displayed on the Drill Through Page	118
Modifying the Format For Numeric Values Displayed in a Single Column on the Drill Through Page	121
Exporting the Drill Through Results	125
Printing the Drill Through Data	127
Hiding and Displaying Slices	128
Exporting a Metric View	130
Floating the Metric View	132
About Linked Metric Views	133
Accessing the Linked Views Page	134
Aspects of the Linked Views Page	135
Linking a New Metric View to the Current Metric View	136
Opening a Metric View From the List of Linked Views	137

Adding Slices to a Linked Metric View	138
Removing a Slice from a Linked Metric View	139
Removing a Linked Metric View	141
About Including Actions in Metric Views	142
Invoking Actions	143
Accessing the Design Page	145
Aspects of the Design Page	146
Adding Slices to a Metric View	148
Viewer Tasks Menu	151
Common Tasks Menu	152
Changing the Current Selections	153
Rules for Working on the Design Page	154
Overview of MDX Queries	155
Accessing the MDX Query Window	156
Types of Calculations	157
Making Contribution Calculations	158
Calculating Difference	161
Performing a Customized Calculation	165
Editing a Calculation	168
Examples of Calculations	169
Saving a Metric View	171
Deleting a Metric View	174
Printing a Metric View	175
Overview of Key Performance Indicators	177
Accessing the List of KPIs	178
Aspects of the Key Performance Indicators Page	179
Selected KPI Menu	180
Common Tasks Menu	181
Options for Creating a KPI	182
About Specifying Limits for a KPI	183

Manually Entering Data for a KPI	185
Defining an Aggregation from Sub-indicators for a KPI	191
Creating a KPI Based on An Analysis Services Query	201
Opening an Existing KPI	215
Creating a KPI Using a Meridium APM Query	216
Overview of the View KPI Page	225
KPI Details	226
Dial	227
Trend Chart	228
Trend Data	229
Selected KPI Menu	230
Common Tasks Menu	231
KPI Pages Menu	232
KPI Measurement Pages Menu	233
Sending KPI Images to a Home Page	234
About Modifying the Maximum Y-Axis Scale Value	236
Aspects of the Y-Axis Range Dialog Box	238
Modifying the Y-Axis Scale Range	240
Accessing the KPI Editor Page	242
Aspects of the KPI Editor Page	243
Selected KPI Menu	245
Common Tasks Menu	246
KPI Pages Menu	247
About KPI Data Sources	248
Using an Analysis Services Cube as a KPI Data Source	249
Using an Aggregation of Sub-Indicators	257
Using Manual Input	263
Using a Meridium APM Query for a Data Source	267
About KPI Scores	271
Viewing a KPI Score	272

Modifying the Collection Frequency	273
About the KPI Number Format	275
Available Number Formats	277
Modifying the Number Format for a KPI	279
How Number Formats Are Applied to KPIs	280
Defining Alerts for KPIs	281
Selecting Sub-Indicators for a KPI	285
Adding Reference Documents to a KPI	286
About Updating Measurements	287
Manually Updating Measurements	288
Automatically Updating Measurements	290
Scheduling an Automatic Update for Multiple KPIs	293
Disabling Automatic Updates	294
Deleting a KPI	296
Overview of Scorecards	297
Accessing a List of Scorecards	298
Aspects of the Scorecards Page	299
Scorecard Menu	300
Common Tasks Menu	301
Creating a New Scorecard	302
Opening an Existing Scorecard	303
About the View Scorecard Page	304
Scorecard Menu	306
Common Tasks Menu	307
Scorecard Pages Menu	308
KPI Pages Menu	309
Changing the Scorecard Period	310
Example of a Completed Scorecard on the View Scorecard Page	311
Accessing the Design Scorecard Page	313
Aspects of the Design Scorecard Page	315


Scorecard Menu	317
Common Tasks Menu	318
Scorecard Pages Menu	319
KPI Pages Menu	320
About Designing a Scorecard	321
Renaming a Scorecard	322
Adding an Existing Perspective	323
Creating a New Perspective	324
Adding an Existing Objective	326
Creating a New Objective	327
Adding a KPI	329
Removing Contents from a Scorecard	330
Deleting Content from a Scorecard	331
Modifying the Record Associated with Scorecard Contents	332
Selecting Columns to Include in a Scorecard	333
Example of a Completed Scorecard on the Design Scorecard Page	334
Deleting a Scorecard	335
KPI	336
URL Paths for Metrics and Scorecards	342
Parameters for the Design Page URL	344
Examples of the Design Page URL	345
Parameters for the Results for <Metric View> Page URL	346
Examples of the Results for <Metric View> Page URL	347
Parameters for the Drill Through Page URL	348
Example of the Drill Through Page URL	349
Parameters for the Linked Views URL	350
Examples of the Linked Views URL	351
Parameters for the Scorecard Designer URL	352
Examples of the Scorecard Designer URL	353
Parameters for the Scorecard Viewer URL	354

Examples of the Scorecard Viewer URL	355
Parameters for the Manage KPIs URL	356
Examples of the Manage KPIs URL	357
Slice	358

Overview of Metrics and Scorecards

Meridium APM Metrics and Scorecards functionality empowers an organization to clarify its vision and strategy for equipment performance and translate them into objectives. Metrics and Scorecards integrates performance management theory with sophisticated data analysis tools to prompt and facilitate actions that will improve organizational performance.

Meridium APM Metrics and Scorecards, which uses Microsoft SQL Server Analysis Services, enables the selection of dimensions and measures for easy access to data, multi-dimensional views, drill-down analysis, Scorecards, and Key Performance Indicators (KPIs). Using Meridium APM Metrics and Scorecards functionality, you can measure and examine your company's work requests, locations, equipment, work orders, and task information. Through data analysis, you can regulate your maintenance and reliability measurements. In addition, you can track progress by focusing on specific areas within the organization using KPIs. These KPIs allow you to monitor the most important variables that reflect mission success and company performance.

 **Note:** For Meridium APM Metrics and Scorecards functionality to work properly, Meridium APM must be able to connect to the SQL Server Analysis Server. If the connection is lost or broken for any reason (e.g., the Analysis Server machine is offline for maintenance), certain aspects of Meridium APM Metrics and Scorecards functionality will not work until the connection is restored.


The primary tools that you will use within Meridium APM Metrics and Scorecards include:

- **Metric Views:** A visual representation of a [multidimensional cube](#) that has been defined in SQL Server Analysis Services. When you create a Metric View, you can choose the dimensions within the cube that contains the data you wish to use. After the Metric View has been created, it can be presented in graphical and tabular format.
- **Key Performance Indicator (KPI):** A list of metrics that have been identified as the most important variables reflecting mission success or organizational performance. A KPI is a measure that is monitored over time, based on a pre-determined frequency. Users can create KPIs, schedule updates, create data sources for KPIs, and define alerts for KPIs. A KPI can also be displayed on a Home Page using a dial or a trend chart representation. By monitoring a list of KPIs, your organization can spot performance problems and set steps for improvement.
- **Scorecards:** Reports that reflect the status of the KPIs. Via the Scorecards, users can organize the KPIs that help the organization achieve various objectives. The tabular view summarizes the status of multiple KPIs, helping you see the overall trends in succinct format. Users can also drill down into a single KPI to view more details.

Metrics and Scorecards System Requirements

The *Metrics and Scorecards* license is required to take advantage of Metrics and Scorecards functionality. In addition, your system must contain the basic Meridium APM system architecture and a *SQL Server Analysis Services Server* machine that will host the Microsoft SQL Server Analysis Services software. The following versions of SQL Server Analysis Services are supported in this version of Meridium APM:

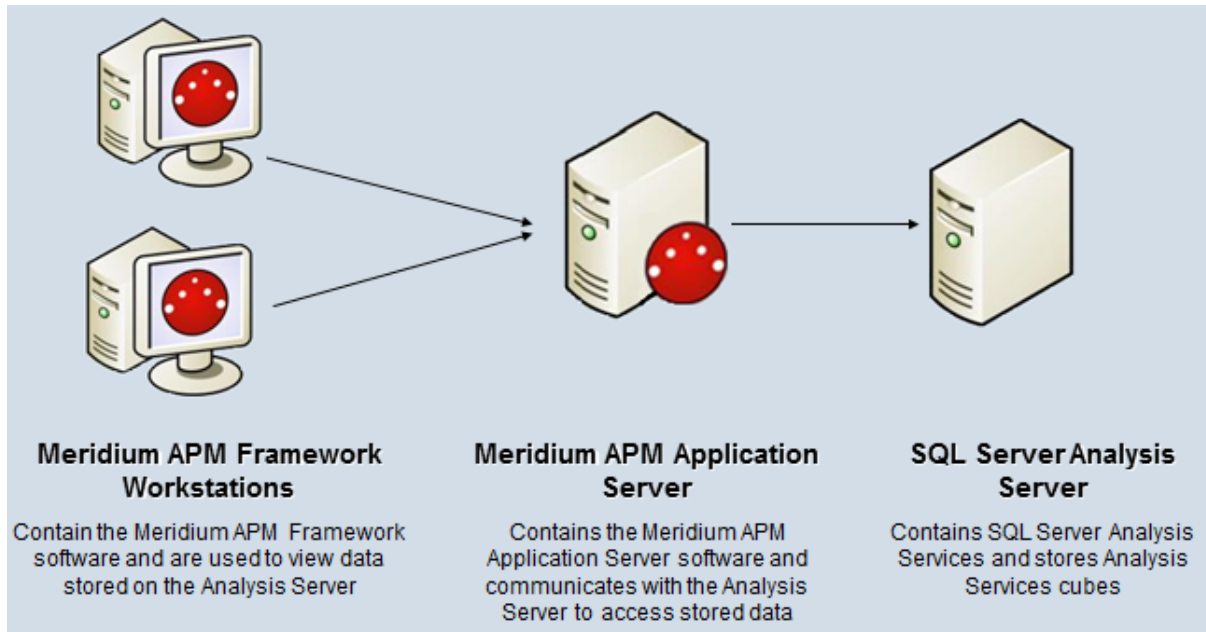
- Microsoft SQL Server Analysis Services 2008 R2
- Microsoft SQL Server Analysis Services 2012

 **Note:** The Meridium APM testing environment uses SQL Server Analysis Services 2008 R2 *SP2* and SQL Server Analysis Services 2012.

Microsoft SQL Server Analysis Services provides the ability to analyze large amounts of data quickly and easily. Analysis Services provides a means for accessing warehouses of data by letting you create dimensional cubes from information in the database and dimension tables. Numeric measures can be summed into pre-aggregated values while cubes are being created. Cubes can contain data that is summarized, copied, or read directly from the data warehouse. Cubes, dimensions, and partitions can be processed (i.e., updated) to incorporate new or changed data from the data warehouse. Time, location, equipment type, or sizes are common dimensions against which measures are calculated and displayed in Meridium APM. Note that the data warehouse can be created as a separate database, combining information from Meridium APM and other data sources. On the other hand, dimensional cubes can be created by accessing the Meridium APM database directly.

Together, Microsoft SQL Server Analysis Services and the Meridium APM Metrics and Scorecards module functionality provide Meridium APM users with the ability to analyze data in the Meridium APM database using the features of Analysis Services through the Meridium APM Framework interface. To use the Meridium APM Metrics and Scorecards functionality, you must incorporate SQL Server Analysis Services into your Meridium APM system.

After you have installed and configured the basic system architecture, you will need to [perform some configuration tasks](#) specifically for the Metrics and Scorecard module. If you choose to implement the Metrics and Scorecards module within your system, we recommend using a configuration in which the Analysis Server exists on a machine that is *separate* from the Meridium APM Application Server. This deployment scenario most accurately reflects the Meridium APM testing environment. The following illustration shows how the SQL Server Analysis Services Server connects to the basic Meridium APM System architecture.

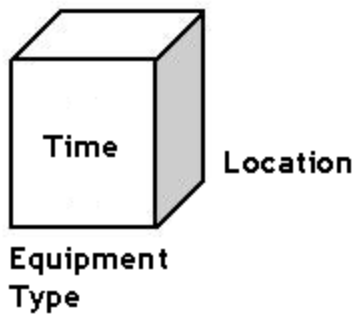


Note: While this image depicts only a single, dedicated Meridium APM Application Server, keep in mind that your implementation may contain one or more of these machines. The purpose of this image is to depict the interaction of the SQL Server Analysis Server with the basic Meridium APM components not to provide details on the basic components themselves. Note that while your Meridium APM system may contain multiple dedicated Application Servers, it will contain only a single SQL Server Analysis Server that ALL of those Application Servers will access.

What Are Cubes?

A cube is an Analysis Services object that provides a multi-dimensional representation of data. When you build a cube in Analysis Services, you define measures and dimensions. Measures are the quantitative values in the database that you want to analyze (e.g., Mean Time Between Failures and Total Costs). Dimensions define exactly what you want to measure (e.g., Location or Equipment Type). Hierarchies define how the dimensions are aggregated.

Dimensions, hierarchies, and measures define a cube. For each intersection of a dimension and measure, a value is calculated. For example, the Mean Time Between Failures for Centrifugal Pumps in FCC Unit during 1999 could equal 152 Days.



Defining Measures for the Cube

Measures are the quantitative values in the database that you want to analyze. Typical measures are sales, cost, and budget data. Measures are analyzed against the different dimension categories of a cube. For example, you may want to analyze sales and budget data (your measures) for a particular product (a dimension) across various countries (specific levels of a geography dimension) during two particular years (levels of a time dimension).

Defining Dimensions for the Cube

The dimensions of a cube represent distinct categories for analyzing business data. Categories such as time, geography, or product line breakdowns are typical cube dimensions.

Dimensions are usually organized into hierarchies of information that map to columns in a relational database. Dimension hierarchies are grouped into levels consisting of dimension members. Each level in a dimension can be rolled together to form the values for the next highest level. For example, in a time dimension, days roll into months, and months roll into quarters. The following hierarchy provides an example how different levels might be arranged within a dimension:

Refinery

- Unit
 - Function Location

What Are Cubes?

Equipment

- Rotating
 - Pump

Year

- Month
 - Day

For more information on the time levels that are supported for use with Meridium APM KPIs, see the topic [Defining Time Levels for KPIs](#).

Overview of the Metrics and Scorecards Data Model

The Metrics and Scorecards module allows you to work with three distinct items:

- Scorecards
- Key Performance Indicators (KPIs)
- Metric Views

Meridium APM leverages its fundamental entity and relationship family infrastructure to store data related to Scorecards, KPIs, and Metric Views. When attempting to understand and make sense of the Meridium APM Metrics and Scorecards functionality, it is helpful to visualize the data model. It may also be useful to remember that Scorecards, KPIs, and Metric Views are simply customized views of individual records and Catalog items that work together to make up the Scorecard, KPI, and Metric View.

A *Scorecard* is represented by a Scorecard record and all the records to which it is linked. Each Scorecard record can be linked to the following records:

- One or more KPI records.
- One or more Reference Document records.
- One or more KPI Objective records.
- One or more KPI Perspective records.

A *KPI* is represented by a KPI record and all the records to which it is linked. Each KPI record can be linked to the following records:

- One or more KPI records.
- One or more Reference Document records.
- One or more KPI Measurement records.
- One or more Scorecard records.

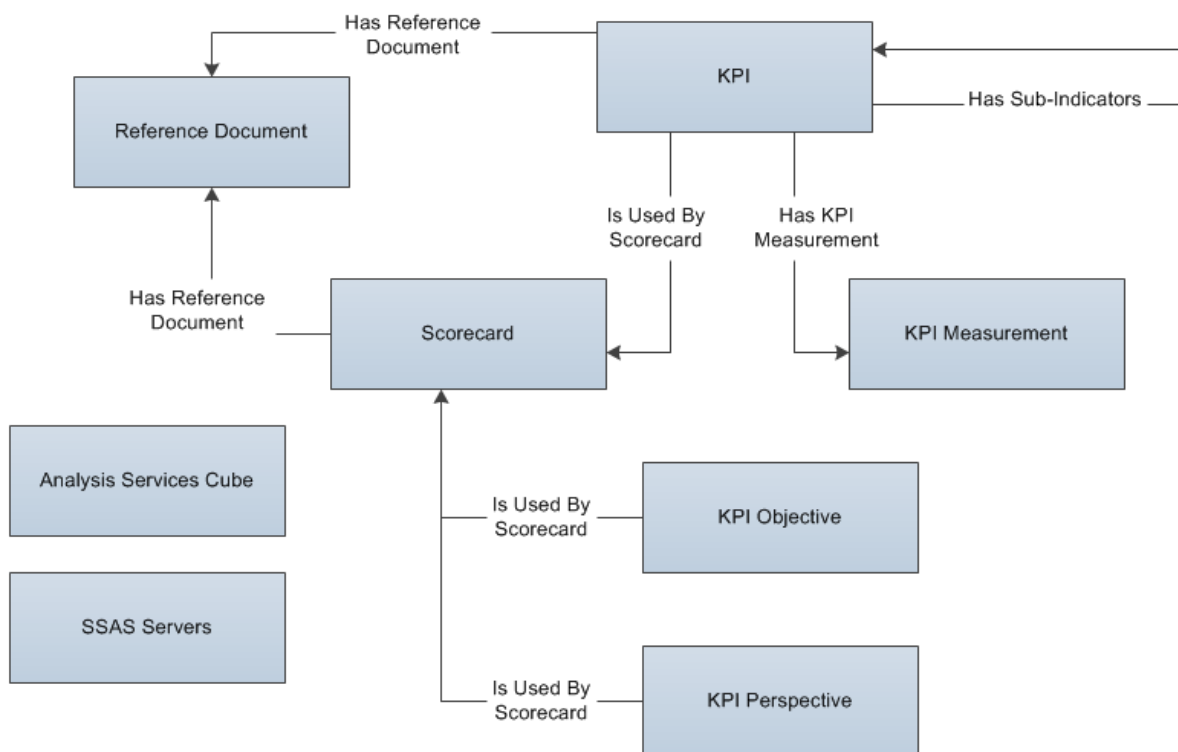
A *Metric View* is a Catalog item that displays data from an Analysis Services Cube, which is represented by an Analysis Services Cube record. In order to build a Metric View, the following items must be configured:

- A SQL Server connection, which is defined in an SSAS Servers record.
- An Analysis Services Cube, whose connection information is stored in the Analysis Services Cube record.

Metrics and Scorecards Data Model

The following diagram illustrates how the entity and relationship families that are used in Metrics and Scorecards are related to one another. The shaded boxes represent entity families, and the arrows represent relationship families. You can determine the predecessor and successor in each relationship definition from the direction of the arrow head:

- The box *from which* the arrow originates is the predecessor in that relationship definition.
- The box *to which* the arrow head points is the successor in that relationship definition.



In this image, you can see that:

- KPI records can be related to other KPI records through the Has Sub-Indicators relationship.
- The SSAS Servers family is not related to any other families. SSAS Servers records support Metric Views.
- The Analysis Services Cube family is not linked to any other KPI families. Analysis Services Cube records support Metric Views.

About Security in Metrics and Scorecards

Family-level permissions configured in the Configuration Manager serve as the foundation for determining which records in Metrics and Scorecards users can and cannot access in the Meridium APM Framework application. In addition to family-level permissions, entity-level privileges can be defined to control access to specific Metrics records.

For example, consider a user who has been granted View permissions on the Pump family. That user will be able to view any Pump record in the Meridium APM Framework application via the Record Manager. Similarly, any user who has been granted View permissions to the KPI family will be able to open KPI records via the Record Manager. To open records in Metrics and Scorecards, however, the user must be granted View privileges on that specific KPI.

Via the Meridium APM Framework application, you can manage privileges for specific:

- [KPIs](#).
- [Scorecards](#).
- [Analysis Services Cube records](#).

Note that:

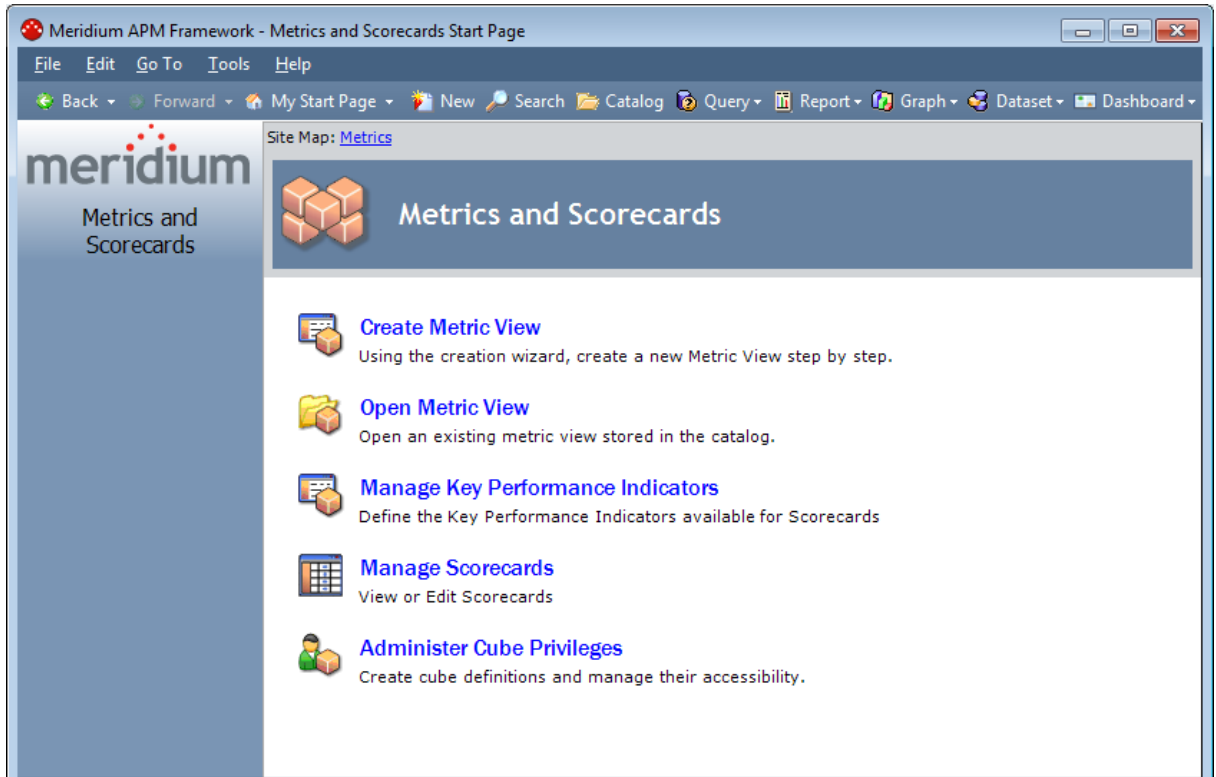
- Only Super Users and members of the MI Metrics Administrator Security Group can manage privileges for the Analysis Services Cube records.
- Members of the MI Metrics Administrator Security Group can manage the entity-level privileges for all KPIs and Scorecards. Other users can manage privileges only for the KPIs and Scorecards that they created and for which they have been granted entity-level update privileges.

Accessing the Metrics and Scorecards Start Page

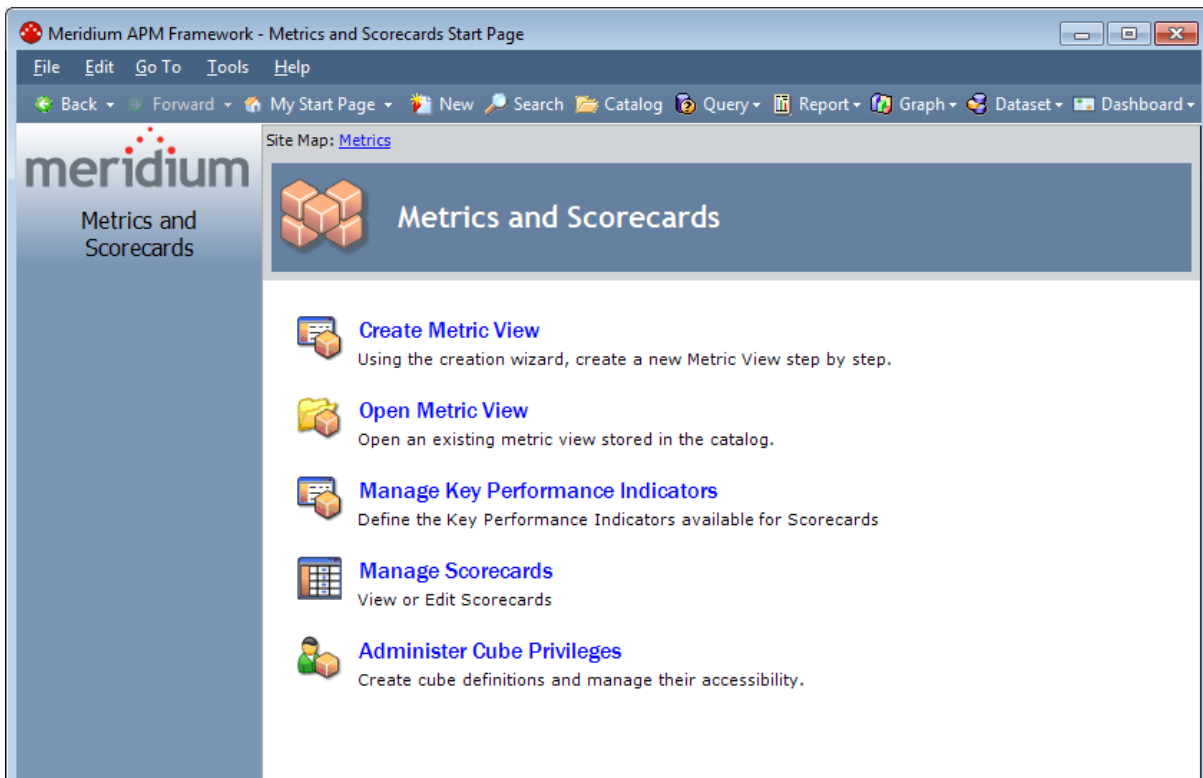
To access the Metrics and Scorecards Start Page:

- On the Meridium APM Framework main menu, click **Go To**, point to **Failure Elimination**, and then click **Metrics and Scorecards**.

The **Metrics and Scorecards Start Page** appears.



Aspects of the Metrics and Scorecards Start Page



The **Metrics and Scorecards Start Page** contains the following links, which give you quick access to various functions:

- **Create Metric View:** Displays the **Metric View Builder**, which takes you step-by-step through the process of [creating a Metric View](#).
- **Open Metric View:** Displays the **Open Metric View** dialog box, from which you can [open a Metric View](#) that currently exists in the Meridium APM Catalog.
- **Manage Key Performance Indicators:** Displays the **Key Performance Indicators** page, which displays a list of existing KPIs. From the **Key Performance Indicators** page, you can [access an existing KPI](#) or [create a new KPI](#).
- **Manage Scorecards:** Displays the **Scorecards** page, where you can manage existing Scorecards and [create new Scorecards](#).
- **Administer Cube Privileges:** Displays the **Metrics Manager Administration** page, where you can manage [Analysis Services Cube records and their privileges](#).

Note: This link appears only if you are a Super User or a member of the MI Metrics Administrator Security Group.

First-Time Deployment Workflow

Deploying and configuring the Metrics and Scorecards module for the first time includes completing multiple steps, which are outlined in the table in this topic. The steps in this section of the documentation provide all the information that you will need to deploy and configure the Metrics and Scorecards module on top of the basic Meridium APM system architecture.

Whether a step is required or optional is indicated in the **Required/Optional** cell. Steps are marked as *Required* if you must perform that step to take advantage of the Metrics and Scorecards functionality.

The person responsible for completing each task may vary within your organization. We recommend, however, that the steps be performed in relatively the same order in which they are listed in the table.

Step	Task	Required/Optional
1	<p>Deploy SQL Server Analysis Services on the SQL Server Analysis Server machine.</p> <p>These instructions assume that you have read the Metrics and Scorecards hardware and software requirements and that you have obtained the SQL Server Analysis Services software installer.</p> <p>Deploying SQL Server Analysis Services on the SQL Server Analysis Server machine includes the following steps:</p> <ul style="list-style-type: none"> • Install SQL Server Analysis Services. • Create the Analysis Services databases, data sources, and cubes that you want to use with Meridium APM. • Grant permissions to the cubes that exist on the Analysis Server. • Configure permissions necessary for updating KPIs. • Define time levels for KPIs. 	Required
2	<p>Configure a cube for usage metrics tracking on the SQL Server Analysis Server. This step will need to be completed only if you will use Metrics and Scorecards to view the usage metrics in a cube.</p>	Optional
3	<p>Schedule cubes for processing on the SQL Server Analysis Server.</p>	Optional

Step	Task	Required/Optional
4	If needed, migrate SQL Server cubes from one version of SQL Server Analysis Services to another.	Required
5	Assign Security Users to the Metrics and Scorecards Security Groups via the Configuration Manager application.	Required
6	Create Analysis Services Cube records for each cube that has been defined in SQL Server Analysis Services , via the Meridium APM Framework application.	Required
7	Grant Security Users and Groups access rights to Analysis Services Cube records via the Meridium APM Framework application.	Required
8	Create a master KPI schedule item in Schedule Manager in order for KPI measures to be updated on a recurring basis.	Required
9	Configure privileges for KPI via the Meridium APM Framework application.	Required
10	Configure privileges for Scorecards via the Meridium APM Framework application.	Required

Upgrade or Update Metrics and Scorecards to V3.6.1.6.0

The following tables list the steps that are required to update or upgrade Metrics and Scorecards to V3.6.1.6.0. These steps assume that you have completed the steps for upgrading the basic Meridium APM system architecture.

Update from any version V3.6.1.0.0 through V3.6.1.5.0

This module will be updated to V3.6.1.6.0 automatically when you update the components in the basic Meridium APM system architecture. No additional steps are required.

Upgrade from any version V3.6.0.0.0 through V3.6.0.12.8

The Metrics and Scorecards module will be upgraded to V3.6.1.6.0 automatically when you upgrade the components in the basic Meridium APM system architecture. No additional steps are required.

Upgrade from any version V3.5.1.0.0 through V3.5.1.12.1

The Metrics and Scorecards module will be upgraded to V3.6.1.6.0 automatically when you upgrade the components in the basic Meridium APM system architecture. No additional steps are required.

Upgrade from any version V3.5.0 SP1 LP through V3.5.0.1.10.0

Step	Task	Required/Optional	Notes
1	Migrate your SQL Server Analysis Services database and cubes to SQL Server Analysis Services 2012.	Optional	This step is necessary only if you were previously using SQL Server Analysis Services 2008 R2 and want to use SQL Server Analysis Services 2012 instead.

Upgrade from any version V3.5.0 through V3.5.0.0.7.1

Step	Task	Required/Optional	Notes
1	Migrate your SQL Server Analysis Services database and cubes to SQL Server Analysis Services 2012.	Optional	This step is necessary only if you were previously using SQL Server Analysis Services 2008 R2 and want to use SQL Server Analysis Services 2012 instead.

Upgrade from any version V3.4.5 through V3.4.5.0.1.4

Step	Task	Required/Optional	Notes
1	<p>Migrate your SQL Server Analysis Services database and cubes to either of the following supported SQL Server Analysis Services versions:</p> <ul style="list-style-type: none"> • 2008 R2 • 2012 	Optional	<p>This step is required if you were previously using SQL Server Analysis Services 2005.</p> <p>This step is optional if you were previously using SQL Server Analysis Services 2008 R2 and want to use SQL Server Analysis Services 2012 instead.</p>
2	Create a master scheduled item for managing automatic KPI updates , via the Schedule Manager application.	Required	This step is necessary for supporting automatic KPI updates.

Installing SQL Server Analysis Services on the Sever

Why Does This Software Need to Be Installed?

SQL Server Analysis Services is the foundation for the Meridium APM Metrics and Scorecards module because it serves as a storage and management mechanism for cubes, which can then be accessed and viewed via the Meridium APM Framework application. To support Metrics and Scorecards features, SQL Server Analysis Services must be installed on the machine that will serve as the Analysis Server. The Analysis Server must be set up as a machine that is *separate* from the Meridium APM Application Server.

Where Does This Software Need to Be Installed?

SQL Server Analysis Services must be installed on the machine that will function as the Analysis Server. You do not need to install any SQL Server components on the Application Server to support the Metrics and Scorecards functionality.

Performing the Installation

SQL Server Analysis Services can be installed using the SQL Server Standard Edition installation package, which you may have received from Meridium, Inc. or from a third-party vendor, depending upon the licensing options you selected when you purchased the Meridium APM product. Instructions for performing the installation can be found in the documentation included in the SQL Server Standard Edition installation package.

Migrating SQL Server Cubes

If you are upgrading from a previous version of Meridium APM and you have existing Metrics and Scorecards objects (e.g., Metric Views and KPIs) that are based upon SQL Server 2005 or SQL Server 2008 R2 Analysis Services cubes, you may be able to migrate your cubes while maintaining the proper functioning of your existing Meridium APM objects.

- If you have SQL Server Server 2005 cubes, you can migrate them to SQL Server 2008 R2 or SQL Server 2012.
- If you have SQL Server 2008 R2 cubes, you can migrate them to SQL Server 2012.

The following workflow provides a general overview of the process for migrating cubes from an older version of SQL Server Analysis Services to a newer version of SQL Server Analysis Services. For more details, you should consult your SQL Server documentation.

△ IMPORTANT: Depending upon the complexity of your cubes, you may or may not be able to migrate them successfully. We recommend that you attempt to migrate them using the following procedure. If you review the cubes after the migration and determine that the migration was not successful, the cubes will need to be rebuilt. In that case, any Meridium APM KPIs and Metric Views that were based upon those cubes must also be rebuilt.

To migrate cubes from an older version of SQL Server Analysis Services to a new version of SQL Server Analysis Services:

1. On the SQL Server Analysis Services Server where the older version of SQL Server Analysis Services is installed, open the SQL Server Management Studio window.
2. Connect to the SQL Sever Analysis Services database that you want to upgrade.
3. In the **Object Explorer** pane, right-click **Databases**, and click **Backup**.

The **Backup Database - <Database Name>** window appears, where **<Database Name>** is the name of the database that you want to upgrade.

4. To the right of the **Backup file** text box, click the **Browse** button, and specify the location where the database will be backed up.
5. Specify any additional settings, and then click **OK**.

The selected database is saved to an ABF file in the specified location.

6. Open the SQL Server Management Studio window for the new version of SQL Server Analysis Services.

7. In the **Object Explorer** pane, right-click **Databases**, and click **New Database**.

The **New Database** window appears.

8. In the **Database name** cell, enter a name for the database that you are migrating to the new version of SQL Server Analysis Services.

9. Specify any additional settings, and then click **OK**.

The specified database is created, and a corresponding node appears in the **Object Explorer** pane.

10. Right-click the node representing the new database, and click **Restore**.

The **Restore Database** window appears.

11. In the **Backup file** cell, enter the file path or click the **Browse** button and navigate to the database file that you backed up in step 5.

12. Specify an additional settings, and then click **OK**.

Your SQL Server Analysis Services database is migrated to the new SQL Server Analysis Services version.

13. In the Meridium APM Framework application, [in the Analysis Services Cube records](#) that are associated with the cubes that you migrated, change the value in the Analysis Services Type field so that it represents the newer version of SQL Server Analysis Services. For example, if the current value is *SSAS2005*, you will want to change it to *SSAS2008 R2*.

You can make this change manually via the Record Manager or by using an Update Query. The following code represents a sample Update Query that you can use for changing the Analysis Server Type from *SSAS2005* to *SSAS2008 R2*. When you run the query, you will be prompted to select from a list of Analysis Services Cube records that contain *SSAS2005* in the Analysis Server Type field. All records that you select from the list will be updated with the value *SSAS2008 R2*.

```
UPDATE [MI Analysis Services Cube]
```

```
SET [MI Analysis Services Cube].[MI_AS_CUBE_ANALY_SERV_TYPE_C] = 'SSAS2008 R2'
```

```
WHERE [MI Analysis Services Cube].[MI_AS_CUBE_CUBE_NAME_CHR] IN (? :s :mv :caption='Cube ID' :id=CUBEID :query='SELECT DISTINCT [MI_AS_CUBE_CUBE_NAME_CHR] FROM [MI Analysis Services Cube] WHERE [MI_AS_CUBE_ANALY_SERV_TYPE_C]="SSAS2005" ORDER BY [MI_AS_CUBE_CUBE_NAME_CHR] ' :excl)
```

14. In the Meridium APM Framework application, in the Metrics and Scorecards module, [modify the remaining properties of each Analysis Services Cube record](#), including selecting the appropriate new SQL Server Analysis Server. You can do using the **Change Cube** builder, which is accessible via the **Change Existing** link on the **Cube Tasks** menu.

15. View existing objects (e.g., Metric Views and KPIs) that are based upon the migrated cubes to ensure that the correct data is being displayed. If the correct data is not displayed, rebuild the cubes and the objects that are based upon them. For details on rebuilding cubes, consult your SQL Server documentation.

Creating the Analysis Services Database, Data Source, and Cubes

In addition to creating the Analysis Services database, data source, and cubes, the cubes must be processed before they will be available for use in the Meridium APM system. For details on completing these tasks, consult your SQL Server documentation.

Granting Permissions to Cubes in Analysis Services

Permission to access and manage objects on the Analysis Server, including databases and cubes, can be granted in various ways through SQL Server Analysis Services. Any Meridium APM user who will need to access and manage Analysis Services objects, either directly on the Analysis Server or indirectly through Meridium APM, will need to have the proper permissions in order to access those objects. To ensure the proper functioning of the Metrics and Scorecards module, we recommend that you grant privileges to Analysis Services objects by assigning users the *Analysis Services server role* on the Analysis Server. This level of permissions represents environment used by Meridium, Inc. for testing the Metrics and Scorecards module.

Membership to the Analysis Services server role can be granted at the Windows user or group level. You can assign this role to the individual Windows user accounts that will be used to access cubes on the Analysis Server through Meridium APM, or you can assign this role to Windows groups. For example, you might create a Meridium APM Metrics Windows group, assign to that group all the Windows users who will need to access and manage objects on the Analysis Server through Meridium APM, and then assign the appropriate Windows users to that group.

For details on assigning users and groups to the Analysis Services server role, see your SQL Server documentation.

Configuring Permissions Necessary for KPI Updates

KPIs are built upon SQL Server Analysis Services Cubes and can be updated periodically to reflect the most current data in those cubes. When a user attempts to update KPIs from Meridium APM, a request is sent from Meridium APM to the Analysis Server. This request is sent under the Anonymous user account. Therefore, for KPIs to be updated successfully:

- The Analysis Server must be configured to allow anonymous access.
- and-
- The Anonymous user account must have permission to access the database in which the cube is stored.

If these steps have not been completed, an error message will be displayed when users attempt to update KPIs in the Meridium APM system.

Enabling Anonymous Access

Anonymous access is not enabled by default on a new installation of SQL Server Analysis Services but can be enabled via the SQL Server Surface Area Configuration tool, which can be installed with SQL Server. For details on enabling anonymous access to the Analysis Server, launch the SQL Server Surface Area Configuration tool, open the Help, and search for the topic on allowing anonymous connections in SQL Server Analysis Services.

Granting Permissions to the Anonymous User Account

After anonymous access has been enabled on the Analysis Server, you must configure permissions that will give the ANONYMOUS LOGON account access to the cubes on that server. The ANONYMOUS LOGON account must be granted *at least* Read permissions to all cubes on the Analysis Server on which KPIs have been built. Read permissions can be granted by creating a Role for the database which the cubes are stored, granting members of that Role Read permissions to the desired cubes within that database, and then assigning the ANONYMOUS LOGON account to that Role. For more information on configuring permissions for Analysis Services, see your SQL Server documentation.

Defining Time Levels for KPIs

When you [build a KPI in the Metrics and Scorecards](#) module, you will be prompted to select a Time Dimension and Time Level from the source cube that will be used for generating measurements over the specified period of time. The Metrics and Scorecards module supports the use of Time Levels that are based upon standard calendar only. You will not be able to select Time Levels that are based upon fiscal calendar.

The following table provides a list of the hierarchy levels that are supported by the Meridium APM system. When you create a KPI, any hierarchy level that is not supported by Meridium APM will not be available for selection in the **KPI Builder**. The Meridium APM system uses the Key Columns and the Type defined in Analysis Services for each level to validate the level and gather the information needed to build the KPI. For each level listed in the following table, the Key Columns and Type must be defined as specified.

Level	Key Columns set to:	Type
Year	Calendar year	Years
Semester	Calendar year semester	HalfYear
Quarter	Calendar year quarter	Quarters
Month	Calendar year month	Months
Week	Calendar year week	Weeks
Day	Calendar month day	Days

The Meridium APM system supports hierarchies that use any number and combination of the levels listed in this table, with the following restrictions:


- *Year* must be at the root level in all hierarchies.
- Only *Month* can be used as the direct parent of the *Day* level (e.g., Year, Month, Day is supported; Year, Week, Day is not supported).
- Only *Year* can be the direct parent of the *Week* level (e.g., Year, Week is supported; Year, Quarter, Week is not supported).

Providing Access from the Drill Through Feature to the Record Manager

If desired, you can configure Analysis Services cubes so that when a user accesses the [Drill Through page](#), a link will be available to provide access to the associated record in the Record Manager.

Note that the first column in the drill-through results grid contains the hyperlinked Record ID of the associated record. If the Entity ID field is null, the hyperlink displays the text *Empty*. Users can click any link to open the associated record in the Record Manager.

Access to the Record Manager will be available in a Metric View only if the associated cube has been properly configured in Analysis Services to include a link. The Drill Through feature will provide access to the Record Manager if ENTY_KEY is returned as one of the drill-through columns in the cube.

 **Note:** In addition to having the proper [cube privileges](#), users must have at least *View* privileges at the family level to access a record in that family in the Record Manager.

Configuring a Cube for Usage Metrics Tracking


You can track the usage of users in your system. Usage metrics are stored in the MI_USAGE_METRICS system table. When a user logs in to Meridium APM, actions for which usage metrics tracking has been enabled will be stored for that session and saved in batch to the MI_USAGE_METRICS table when the user logs out of Meridium APM.

The following actions can be recorded in the MI_USAGE_METRICS table:


- Login.
- Logout.
- Session time.
- URL visit.

The following columns of data are stored in the MI_USAGE_METRICS table:

- **USME_KEY:** The key value assigned to the action to identify it in the usage metrics table.
- **USME_EVENT_TYPE_DVD:** The type of event (login, logout, session time, or URL visit).
- **SEUS_KEY:** The key value associated with the Security User who performed the action.
- **USME_EVENT_DT:** The date and time the action was performed.
- **USME_EVENT_DESC_TX:** A description of the action. For URL visits, this column stores the URL.
- **USME_MEASR_NBR:** For session time entries, a numeric value that represents the session time.

 **Note:** Usage metrics are recorded only for activities performed via the Meridium APM Framework application. Usage metrics are not recorded for activities performed in the Meridium APM Administrative Applications.

To view the usage metrics that have been tracked for your system, you must create a cube based upon the MI_USAGE_METRICS table. After you create the cube, you must create a join between the MI_USAGE_METRICS table and the MIV_MI_IS_A_USER table. You must also join the MIV_MI_IS_A_USER table to the MIV_MI_HUMAN_RESOURCE table.

 **Note:** Before you can use the cube in the Metrics and Scorecards module, you must enable usage metrics tracking via the Configuration Manager application. For more information, see the Configuration Manager Help.

How Are Cubes Used by Metrics and Scorecards?

The Metrics and Scorecards module provide access through the Meridium APM Framework application to the [cubes](#) that exist in SQL Server Analysis Services and allows you to develop Metric Views and KPIs using the data that is stored in those cubes. Before you can access Analysis Services cubes through Meridium, you will need to complete various configuration tasks. Configuring cubes for use with Meridium APM Metrics and Scorecards functionality consists of the following tasks:

- **Creating cubes in Analysis Services.** Cubes are Analysis Services objects that can be created, modified, and managed using tools that can be installed with SQL Server Analysis Services. The first step in enabling Meridium APM Metrics and Scorecards functionality is to create the desired cubes in Analysis Services.
 - For details on creating and managing cubes in Analysis Services, consult the documentation that was included with your SQL Server Analysis Services installation.
 - For information that is specific to Meridium APM, see the following topics in this Help system:
 - [Granting Permissions to Cubes in Analysis Services](#)
 - [Guidelines for Building Cubes for KPIs](#)
 - [Configuring a Cube for Usage Metrics Tracking](#)
 - [Providing Access from the Drill Through Feature to the Record Manager](#)
- **[Creating Analysis Services Cube records in Meridium APM.](#)** After you have created the desired Analysis Services cubes, you can create Meridium APM objects (i.e., Metric Views and KPIs) that are based upon those cubes. Before you can do so, you must first establish a link between the cubes and Meridium APM. To establish this link, you will create an *Analysis Services Cube record* in Meridium APM to contain all the identifying information for the cube and allow Meridium APM to connect to the appropriate Analysis Server to access the information associated with that cube.
- **[Configure privileges for Analysis Services Cube records.](#)** After you have created the necessary Analysis Services Cube records to make the desired cubes available in Meridium APM, you will need to configure privileges for those Analysis Services Cube records. In addition to Meridium APM standard family-level security, Metrics uses *entity-level security* to control access to individual records. Users must be able to access Analysis Services Cube records in order to access and manage the Meridium APM objects (i.e., Metric Views and KPIs) that are based upon the associated cubes.

All Meridium APM-specific tasks described above can be performed via the [Metrics Manager Administration page](#).

Accessing the Metrics Manager Administration Page

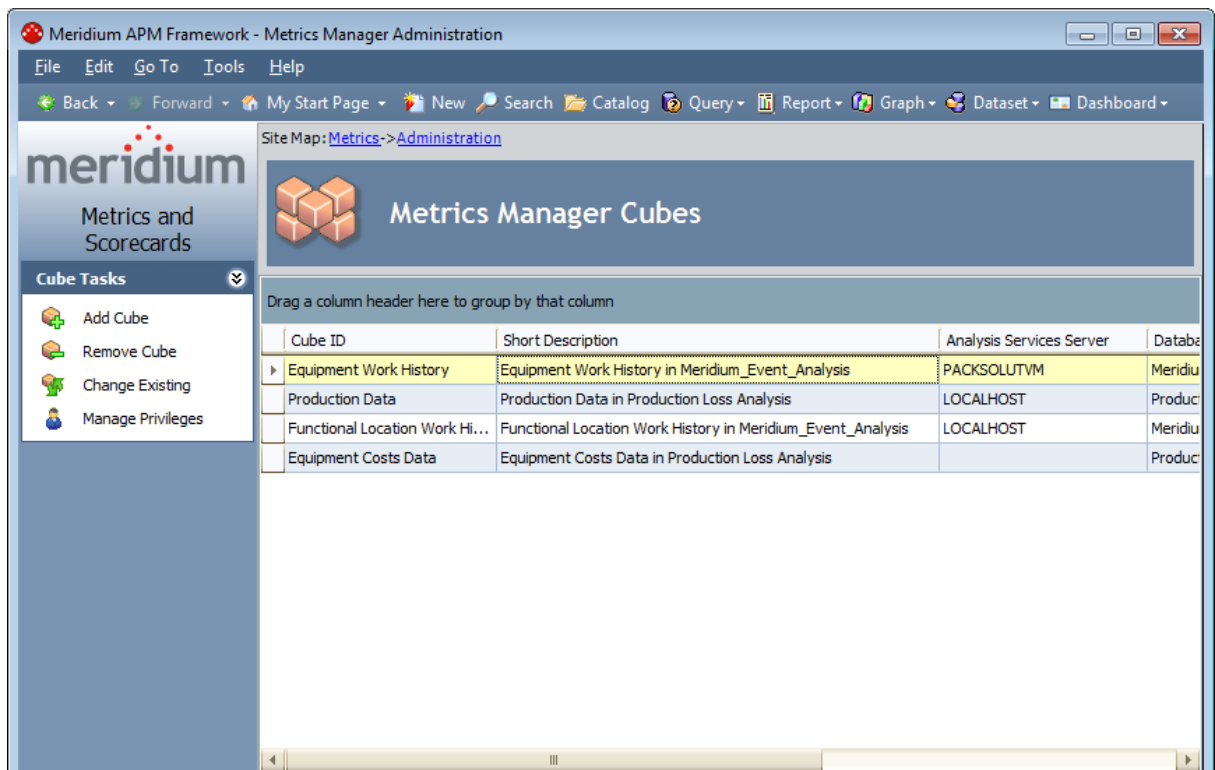
From the **Metrics Manager Administration** page, you can manage Analysis Services Cube records and their privileges.

To access the Metrics Manager Administration page:

- In the Meridium APM Framework application, on the [Metrics and Scorecards Start Page](#), click the **Administrative Cube Privileges** link.

Note: The **Administer Cube Privileges** link appears only to Super Users and members of the MI Metrics Administrator Security Group.

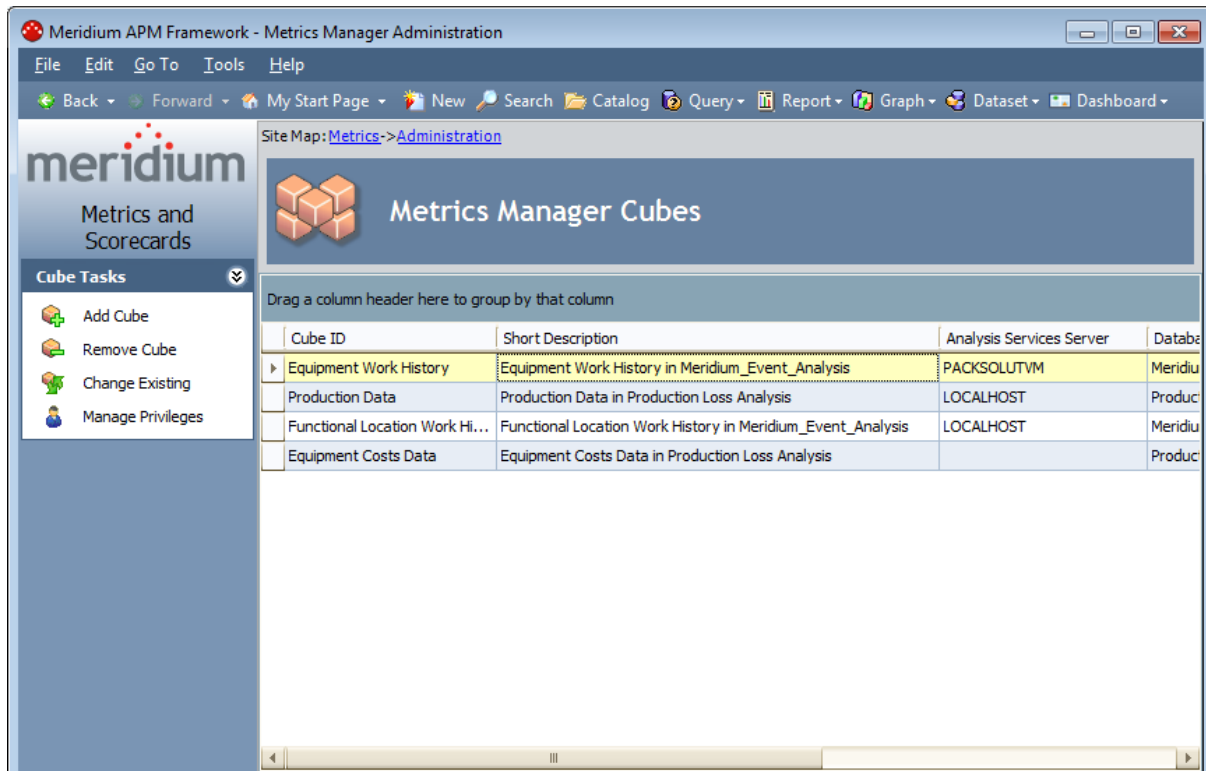
The **Metrics Manager Administration** page appears.



From the [Metrics Manager Administration page](#), you can perform any of the following tasks:

- [Create Analysis Services Cube records.](#)
- [Modify Analysis Services Cube records.](#)
- [Define which Security Users and Security Groups have permission to access Analysis Services Cube records.](#)
- [Delete Analysis Services Cube records.](#)

Overview of the Metrics Manager Administration Page




The [Metrics Manager Administration page](#) contains the following items:

- **Metrics Manager Cubes workspace:** Contains a [grid that displays a list of existing Analysis Services Cube records](#).
- **Cube Tasks menu:** Contains [options that allow you to perform administrative tasks](#) for Analysis Services Cube records.

Metrics Manager Cube Workspace

The **Metrics Manager Cubes** workspace contains a grid that displays a list of existing Analysis Services Cube records.

Site Map: [Metrics](#) -> [Administration](#)



Metrics Manager Cubes

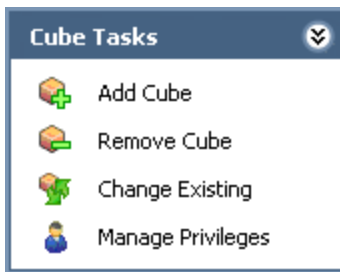
Cube ID	Short Description	Analysis Services Server	Database Name	Cube Name	Last Processed Date
Adventure Works	Adventure Works in Adventure Works DW Standard Edition	QAVMCOMET3	Adventure Works DW Standard Edition	Adventure Works	
AQA Schedule test(Mined Customers)	Mined Customers in Adventure Works DW Standard Edition	QAVMCOMET3	Adventure Works DW Standard Edition	Mined Customers	
GM_Performance	GM_Performance in GM Metrics	QAVMCOMET3	GM Metrics	GM_Performance	6/21/2010
Production Data	Production Data in Production Loss Analysis		Production Loss Analysis	Production Data	

Each row in the grid contains a separate Analysis Services Cube record. By default, for each row in the grid, the following columns are displayed:

- **Cube ID:** Displays the value that exists in the Cube ID field of the Analysis Services Cube record.
- **Short Description:** Displays the value that exists in the Short Description field of the Analysis Services Cube record.
- **Analysis Services Server:** Displays the value that exists in the Analysis Services Server field of the Analysis Services Cube record.
- **Database Name:** Displays the value that exists in the Database Name field of the Analysis Services Cube record.
- **Cube Name:** Displays the value that exists in the Cube Name field of the Analysis Services Cube record.
- **Last Processed Date:** Displays the date on which the cube was last processed. This value is not stored in the Analysis Services Cube record and is instead retrieved from the associated cube in SQL Server Analysis Services when you access the [Metrics Manager Administration page](#).

Note: If a connection cannot be made to SQL Server Analysis Services, either because the server is unavailable or because no value exists in the Analysis Services Server field of the Analysis Services Cube record, then no date will be displayed in the **Last Processed Date** column for that record.

Cube Tasks Menu



The **Cube Tasks** menu contains the following links:

- **Add Cube:** Displays the **Add Cube** builder, which takes you step-by-step through the process of [creating a new Analysis Services Cube record](#).
- **Remove Cube:** After displaying a confirmation message, [deletes the selected Analysis Services Cube record](#).
- **Change Existing:** Displays the **Change Cube** builder, which takes you step-by-step through the process of [modifying an Analysis Services Cube record](#).
- **Manage Privileges:** Displays the **Manage Cube Privileges** window, where you can [define the Security Users and Security Groups that have privileges](#) to the selected Analysis Services Cube records.

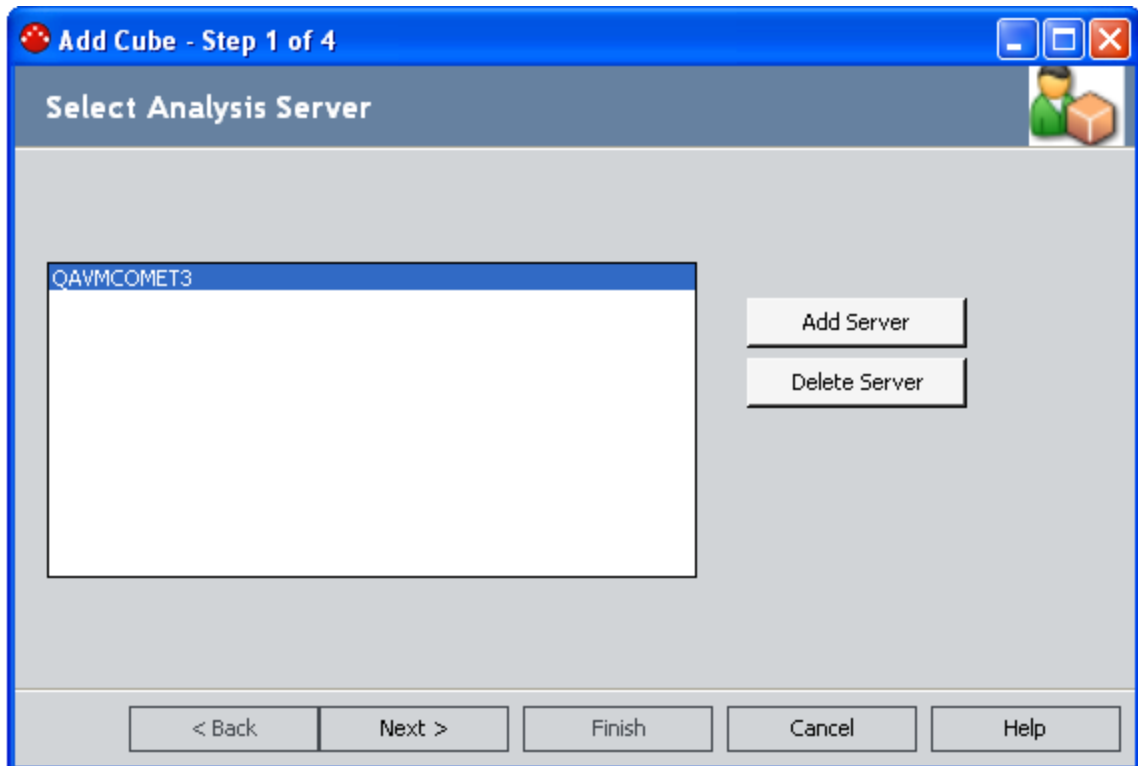
Creating an Analysis Services Cube Record

These instructions provide details on accessing and using the **Add Cube** builder to create a new Analysis Services Cube record, which will store the information of a cube that has been defined in SQL Server Analysis Services. After you create an Analysis Services Cube record, you can [create Metric Views](#) based upon that cube.

To create a new Analysis Services Cube record:

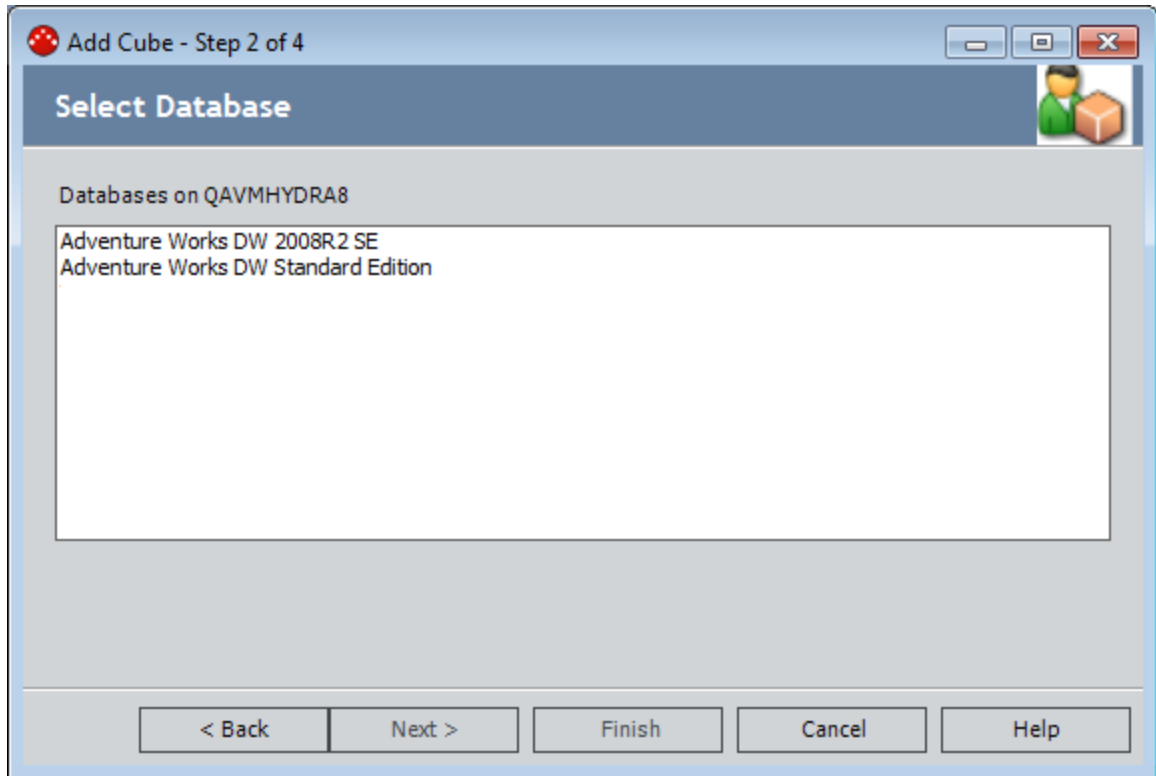
1. In the Meridium APM Framework application, on the [Metrics Manager Administration page](#), on the **Cube Tasks** menu, click the **Add Cube** link.

The **Add Cube** builder appears, displaying the **Select Analysis Server** screen. The **Select Analysis Server** screen displays a list of Analysis Servers that are configured for the selected version. You can add new servers by clicking the **Add Server** button or delete existing servers by clicking the **Delete Server** button.



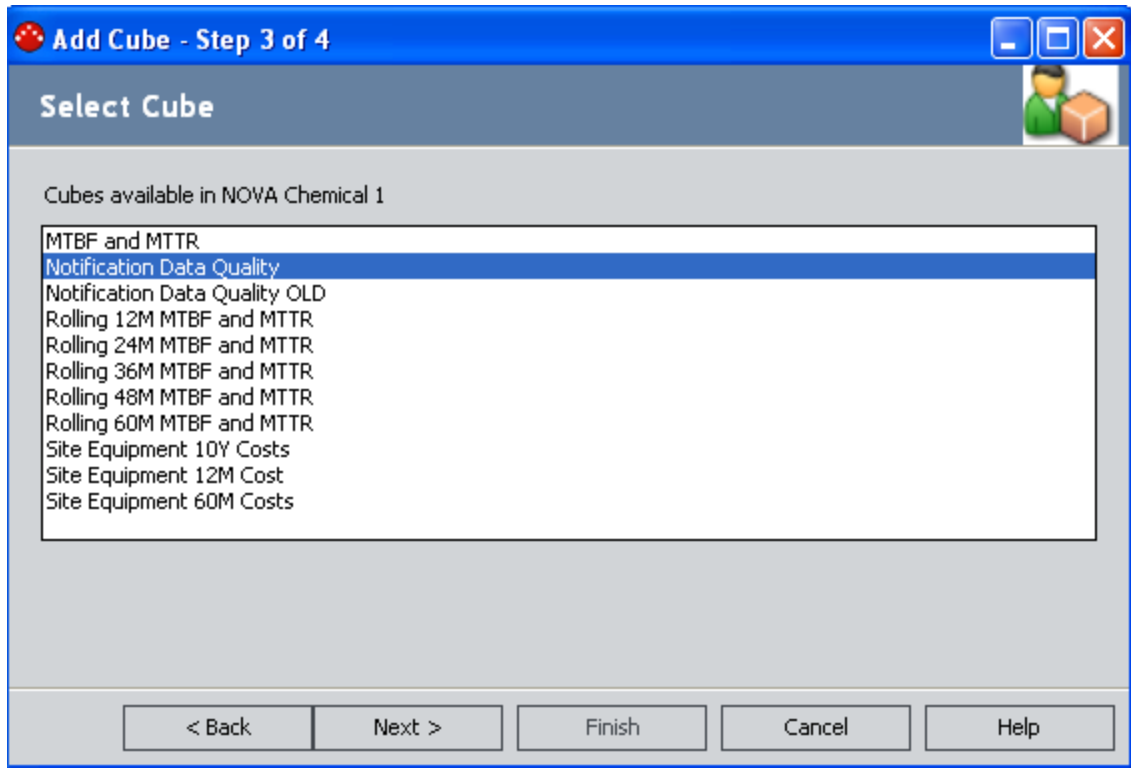
2. In the list of available servers, select the server that contains the cube for which you want to create an Analysis Services Cube record.
3. Click the **Next** button.

The **Select Database** screen appears.

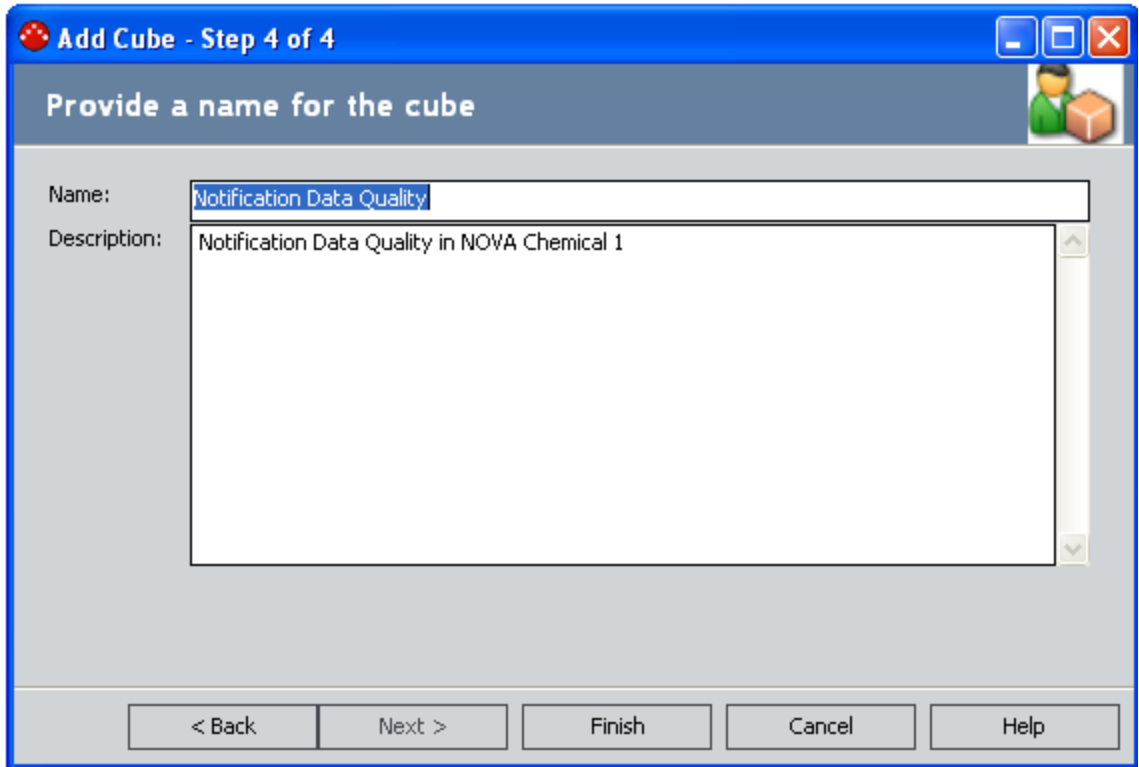


4. In the **Databases on [Server]** list, select the database in which the cube resides, and click the **Next** button.

The **Select Cube** screen appears, displaying a list of cubes that exist for the selected database.



5. Select the desired cube, and click the **Next** button.
The **Provide a name for the Cube** screen appears.



6. In the **Name** text box, type the name of the Analysis Services Cube record. The name should be unique and can contain no more than 50 characters.
7. In the **Description** text box, type a brief description of the cube. This field can contain no more than 255 characters.
8. Click the **Finish** button.

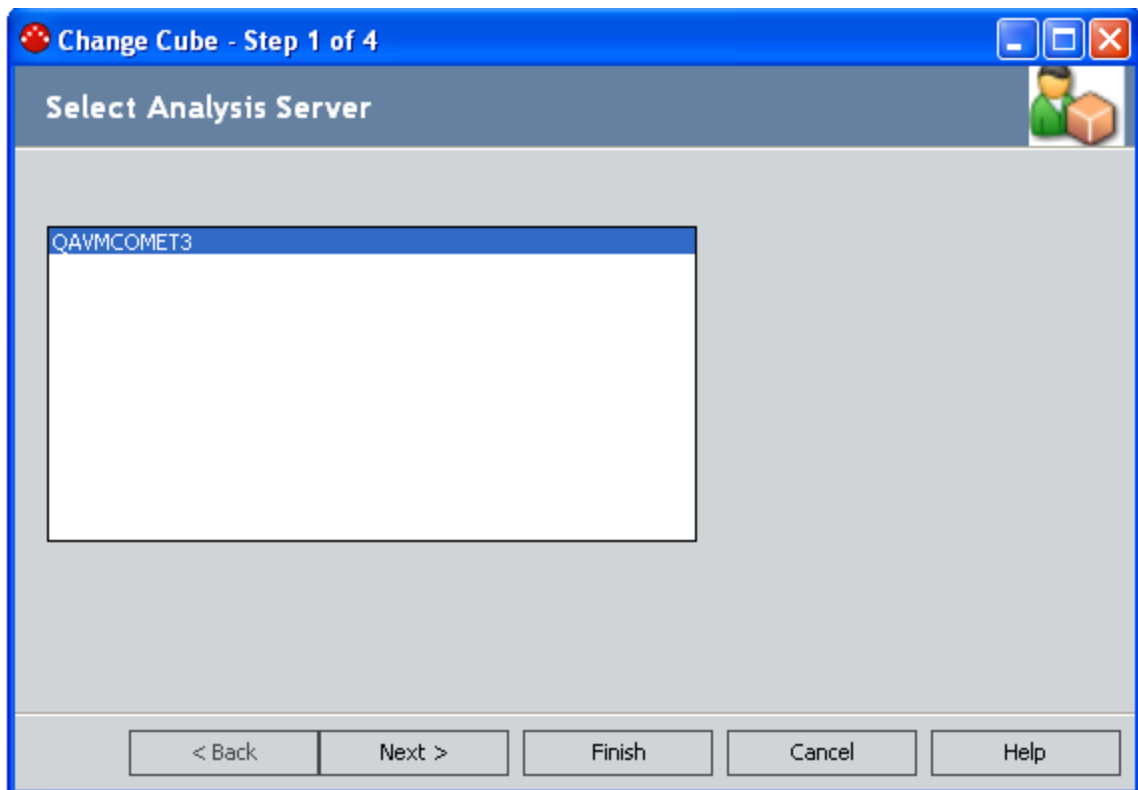
The Analysis Services Cube record is added to the database. The cube can now be used to [create Metric Views](#).

Modifying the Properties of an Analysis Services Cube Record

To modify the properties of an Analysis Services Cube record:

1. In the Meridium APM Framework application, on the [Metrics Manager Administration page](#), in the list of Analysis Services Cube records, select the record that you want to modify.
2. On the **Cube Tasks** menu, click the **Change Existing** link.

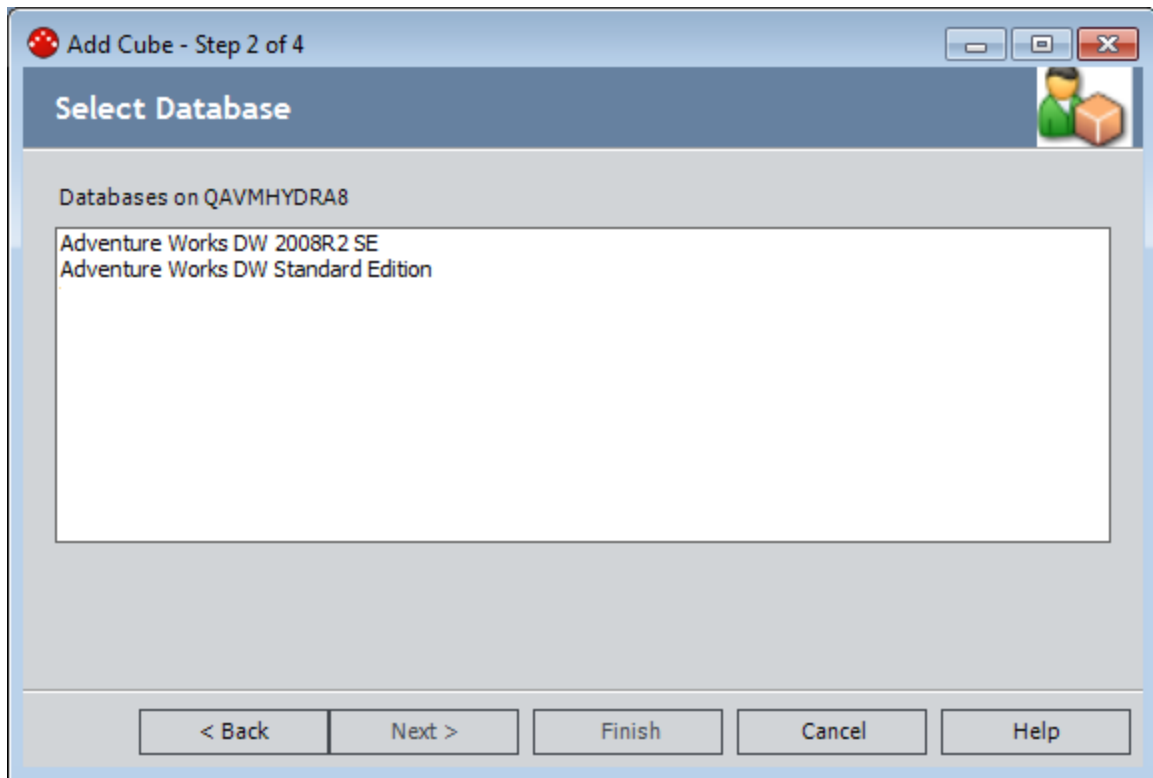
The **Change Cube** builder appears, displaying the **Select Analysis Server** screen.



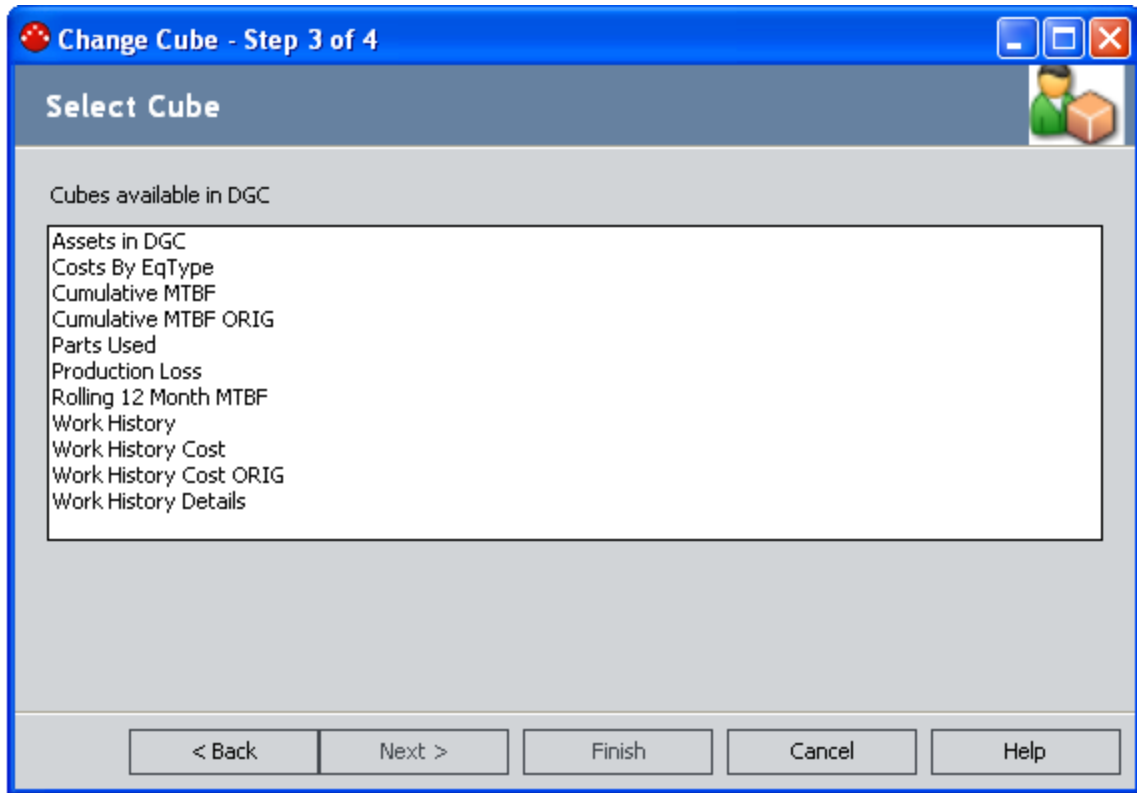
The list contains the Analysis Servers that are configured on the current Application Server.

3. In the list of available servers, select the desired Analysis Server, and click the **Next** button.

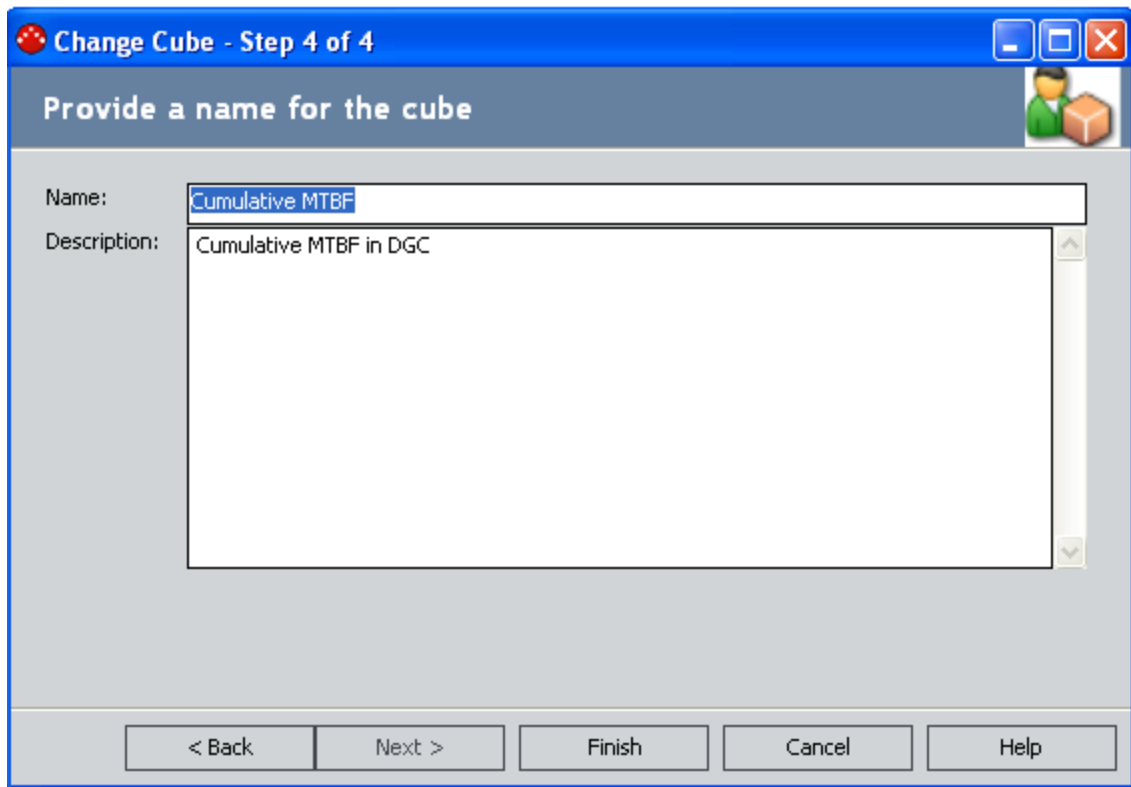
The **Select Database** screen appears.



4. Select the database in which the cube resides, and click the **Next** button.
The **Select Cube** screen appears.



5. Select the desired cube, and click the **Next** button.
The **Provide a name for the cube** screen appears.



6. In the **Name** text box, type the name for the Analysis Service Cube record.
7. In the **Description** text box, type a description for the cube.
8. Click the **Finish** button.
Your changes are saved.

Deleting an Analysis Services Cube Record

From the [Metrics Manager Administration page](#), you can delete any Analysis Services Cube record. Because an Analysis Services Cube record cannot be deleted if it is being used by a Metric View, if you want to delete an Analysis Services Cube record, you must first delete all of the associated Metric Views. Note that deleting an Analysis Services Cube record from Meridium APM does not delete the associated cube from Analysis Services.

To delete an Analysis Services Cube record:

1. In the Meridium APM Framework application, on the [Metrics Manager Administration page](#), in the list of existing Analysis Services Cube records, select the row containing the record that you want to delete.

2. On the **Cube Tasks** menu, click the **Remove Cube** link.

A confirmation message appears.

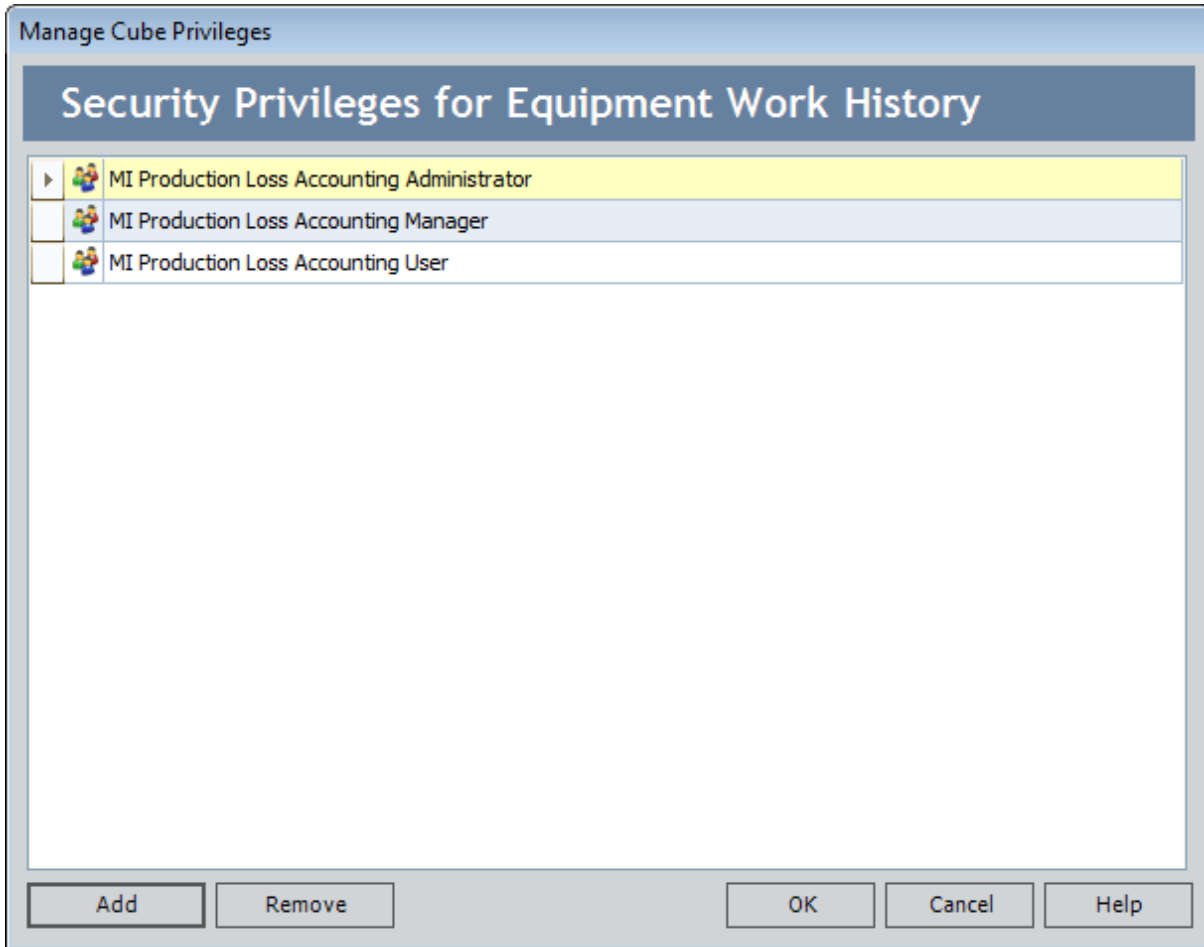
3. Click the **Yes** button.

The Analysis Services Cube record is deleted.

About Managing Cube Privileges

Cube privileges determine which Analysis Services Cube records are available for selection for use within Metric Views. You can see the list of the users and groups that have access to any Analysis Services Cube record by viewing its privileges. From the **Manage Cube Privileges** window, you can:

- [Grant users and groups access rights to an Analysis Services Cube record.](#)
- [Remove existing privileges for a user or group.](#)



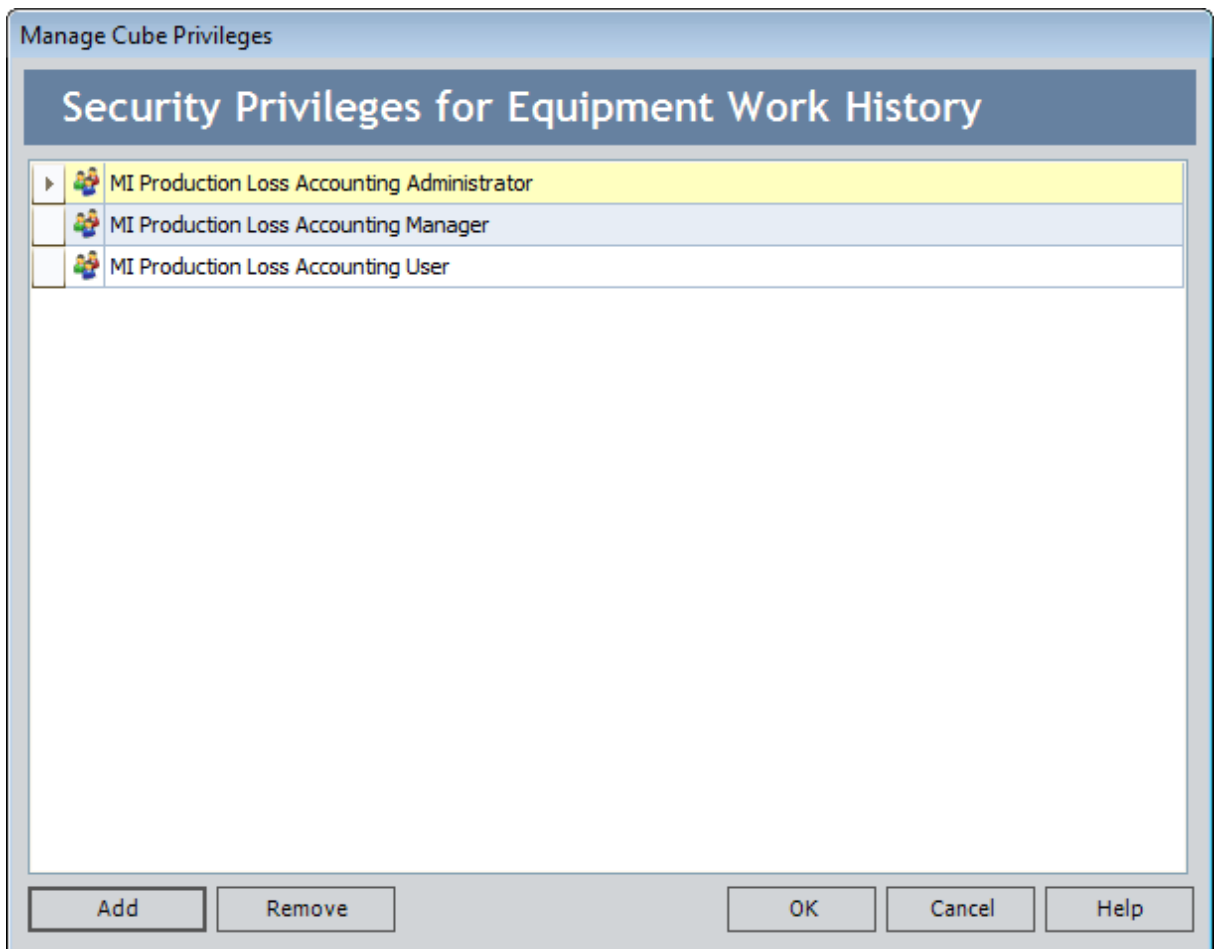
Note: Permission to access existing Metric Views is controlled by the privileges assigned to the Analysis Services Cube records upon which Metric Views are based.

Accessing the Manage Cube Privileges Window

To access the Manage Cube Privileges window:

1. In the Meridium APM Framework application, on the [Metrics Manager Administration page](#), in the list of Analysis Services Cube records, select the record whose privileges you want to manage.
2. On the **Cube Tasks** menu, click the **Manage Privileges** link.

The **Manage Cube Privileges** window appears, displaying a list of users and groups that have been granted privileges to the cube associated with the selected Analysis Services Cube record.



Granting Access to Analysis Services Cube Records

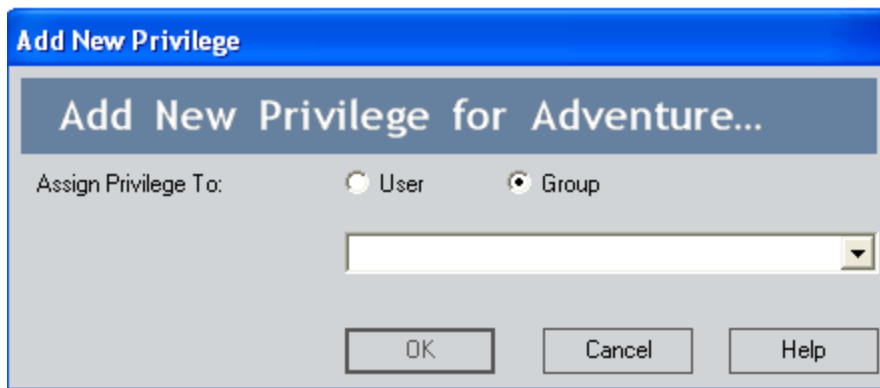
When users have been granted access to Analysis Services Cube records, they will be able to view the Metric Views, Scorecards, and reports that are based on the associated Analysis Services cubes. Administrative users can give entire Security Groups or individual Security Users permission to access particular Analysis Services Cube records and can also [delete these privileges](#).

Note: Privileges that are assigned in the Meridium APM Framework application work in conjunction with family-level permissions defined via the Configuration Manager. To access a given cube, not only must a user be granted access to the appropriate Analysis Services Cube record using the following instructions, the user must also be granted the necessary family-level permissions.

To grant a user or group access to an Analysis Services Cube record:

1. On the [Manage Cube Privileges window](#), click the **Add** button.

The **Add New Privilege** dialog box appears.



2. Click the option that corresponds to the type of privileges that you want to assign: **User** or **Group**.
3. Select the desired user or group from the list.

Note: Inactive Security Groups may appear in the list.

4. Click **OK**.

The **Add New Privileges** dialog box closes, and the new user or group appears in the list on the **Manage Cube Privileges** window. You can repeat these steps for each user or group to whom you want to grant privileges to the cube associated with the Analysis Services Cube record.

5. When you are finished setting up privileges, on the **Manage Cube Privileges** window, click **OK**.

Your changes are saved to the database.

Deleting Cube Privileges

To delete privileges that are assigned to Security Users or Security Groups:

1. On the [Manage Cube Privileges window](#), select the Security User or Security Group whose privileges you want to delete.
2. Click the **Remove** button.
The Security User or Security Group is deleted from the list.
3. Continue deleting users and groups in this way until you have deleted all the necessary privileges.
4. Click **OK**.
Your changes are saved to the database.

About Updating KPIs Automatically

KPIs can be scheduled to be updated automatically on a one-time or recurring basis. Enabling this feature is a two-part process:

- An administrative user must create a master scheduled item in the Meridium APM Schedule Manager.
- [Individual KPIs must be scheduled for updates according to the desired frequency via the Key Performance Indicators page.](#)

The master scheduled item defines the maximum frequency with which individual KPIs can be updated. For example, if you schedule the master scheduled item to run weekly, individual KPIs cannot be scheduled to be updated more than once per week. Be sure to create the master scheduled item to accommodate the most frequent schedule desired for your KPIs.

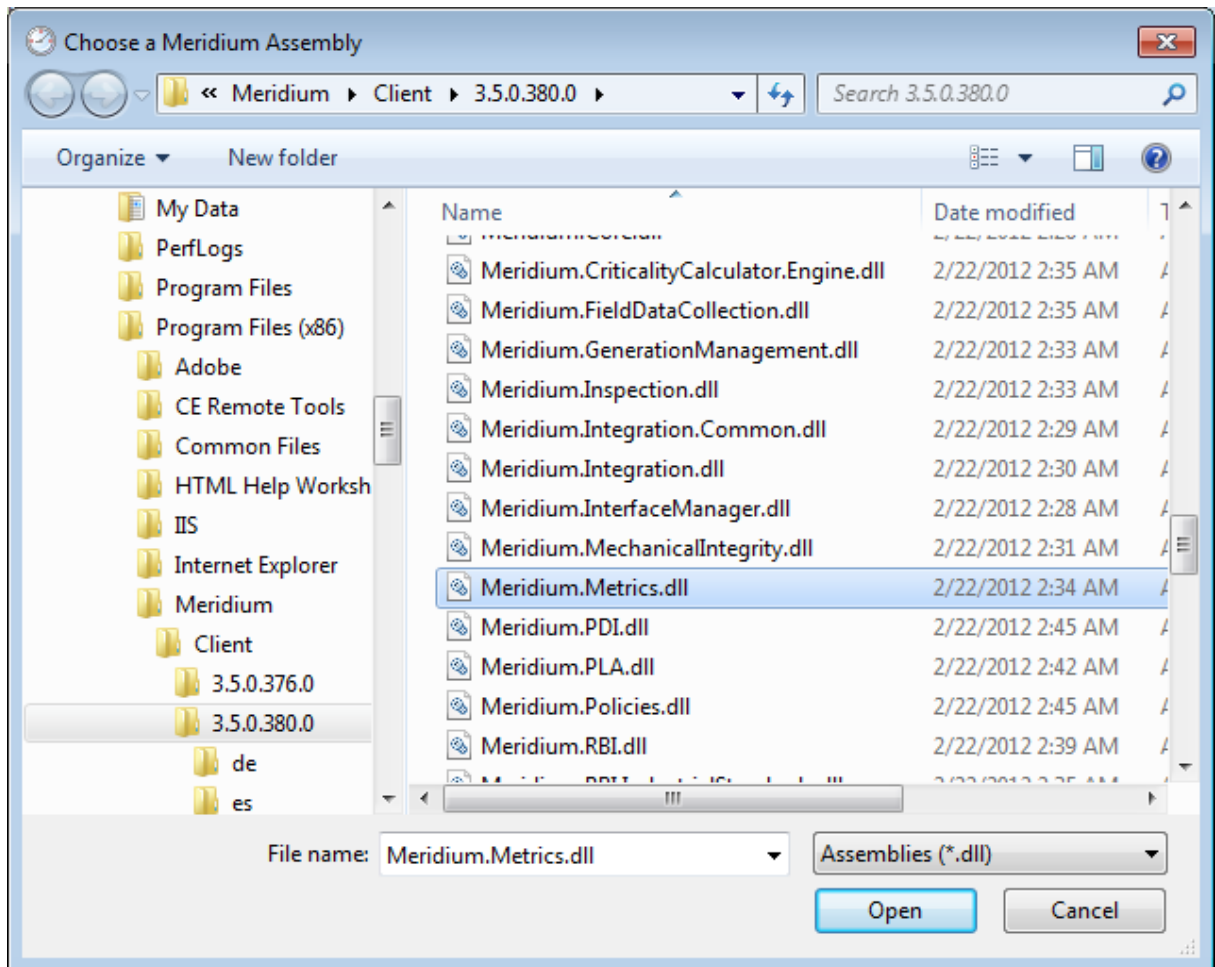
Scheduling information for each KPI is [stored in the KPI record](#) along with a next execution date. When the master schedule item is executed, all KPIs with a next execution date that is on or before the current date will be updated, and their next execution date will be incremented. Therefore, while the schedule information is stored at the KPI level, the master scheduled item must be running for that schedule information to be used. In other words, all KPIs that are scheduled as recurring items rely on the execution of the master scheduled item.

Creating the Master Scheduled Item

To create a master KPI schedule item in the Schedule Manager:

1. Launch the Meridium APM Schedule Manager and log in.
2. On the **Scheduled Items** window, click the **Add New...** link.

The **Choose a Meridium Assembly** window appears.



3. Select the file **Meridium.Metrics.dll**, and click the **Open** button.

The **KPI Update Schedule** dialog box appears, displaying the **Task** tab.

KPI Update Schedule

Master KPI Update Schedule

Task | User

Last Executed: Never

Next Execution: 2/22/2012 1:30 PM

Recurring Item

Occurs

Every 1 minute(s)

Every 1 day(s)

Each Sunday every 1 week(s)

Every 1 month(s) on day 1 of the month

Every 1 year(s) on February 22

OK Close

4. Select the **Recurring item** check box, and then select the frequency for the execution.
5. Click the **User** tab.

The image shows a software dialog box titled "KPI Update Schedule". Inside the dialog, there is a sub-header "Master KPI Update Schedule". Below this, there are two tabs: "Task" and "User". The "User" tab is active, showing two text input fields labeled "User ID" and "Password". At the bottom right of the dialog, there are two buttons: "OK" and "Close".

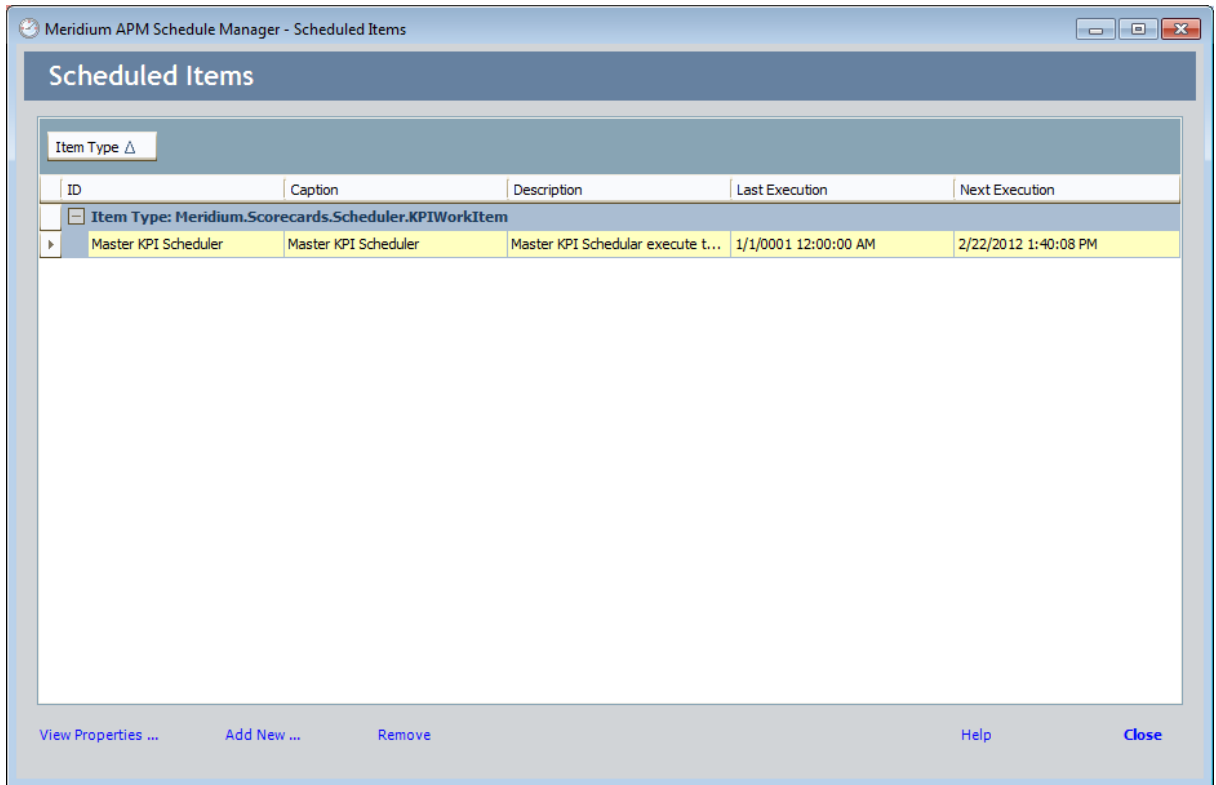
6. In the **User ID** text box, type the user ID of the Security User whose account you want to use for executing this scheduled item. This user must be a member of the MI Metrics Administrator Security Group.

Note: If you specify the User ID of a Security User who is not a member of the MI Metrics Administrator Security Group, when you click **OK**, a message will appear stating that you have insufficient privileges to create a master KPI schedule item.

7. In the **Password** text box, type the password associated with the user ID that you specified in the previous step.
8. Click **OK**.

The scheduled item is saved and appears in the **Scheduled Items** window.

Creating the Master Scheduled Item



Note: Only one master KPI schedule item can be saved in Schedule Manager at a time. If you try to add an additional KPI schedule item in Schedule Manager, an error message will appear and you will not be able to save the second schedule item.

About Scheduling Cubes for Processing

An Analysis Services *cube* is a combination of measures and dimensions that together determine how a set of data can be viewed and analyzed. A cube is a static object and initially represents the data that existed in Analysis Services for the selected measures and dimensions when the cube was created. To keep a cube current, it must be *processed* regularly, whereby the cube is updated with the most current data in Analysis Services.

To make sure that a cube always provides users with the most current data, you should schedule it for processing regularly, usually on a daily basis. One way to process cubes and shared dimensions successfully is to do so manually on the Analysis Server. Using this method, you can process shared dimensions first and *then* process the related cubes. Processing cubes manually, however, is not a viable option if you have many cubes that you want to process on a daily basis.

Instead, a preferable option would be to schedule cubes for processing using Data Transformation Services (DTS). This functionality is available in the SQL Server Business Intelligence Development Studio, which is included in SQL Server Standard Edition. For details on creating a DTS package that can be used to process objects according to a custom schedule, see your SQL Server documentation.

About Full Processing and Incremental Processing

When you process a cube on the Analysis Server, either manually or using a schedule, you have the option of choosing *full processing* or *incremental processing*.

- You should use *full processing* whenever structural changes have been made to the cube. Structural changes include:
 - Deleting Meridium APM records that will delete Members from a Dimension.
 - Updating Meridium APM records that will result in changing Member names.
 - Rearranging levels or adding and deleting dimensions.
- You can use *incremental processing* whenever you want to update the cube based on the most recent data, as long as changes to the data do not have any affect on the structure of the cube.

Note that full processing is performed, Metric Views will become inaccessible to users who are currently logged in to the Meridium APM Framework and have already accessed the Views. Users will need to restart the Meridium APM Framework application to access Views after a cube has been processed using full processing, if they are logged in at the time the processing occurred. Meridium APM does not need to be restarted when incremental processing is used.

Therefore, if you are scheduling cubes for processing and need to use the full processing option, you should schedule the processing so that it occurs at a time when users are not using the Meridium APM system. If you are scheduling cubes that are unlikely to change, you can use incremental processing and schedule the processing to occur at any time.

About KPI Privileges

The KPI privileges that you set up in the Meridium APM Framework application are applied in addition to family-level permissions defined for the KPI families. To [view a KPI](#), a user must first have at least View permissions on the KPI families. In addition, a user must be granted privileges to specific KPIs via the Meridium APM Framework application. By managing privileges, you [select the users and groups that should have access rights to a given KPI](#). Additionally, via the Manage Privileges feature, you can [revoke privileges for users and groups](#) that no longer need to access the KPI.

Note that Super Users and members of the MI Metrics Administrator Security Group can manage privileges for ALL KPIs. Other users can manage the privileges for any KPI that they create by default, unless those privileges are revoked by an administrative user. Non-administrative users can also manage privileges for KPIs to which they have been granted Update privileges.

Granting Access Rights to a KPI

To grant a user or group access rights to a KPI:

1. In the Meridium APM Framework application, on the [Key Performance Indicators page](#), in the list of KPIs, select the KPIs whose privileges you want to modify.

Note: If you select multiple KPIs, the **Manage Privileges** window will display only user and group privileges that are assigned to all selected KPIs. Any user or group privilege that does not apply to all selected KPIs will be hidden.

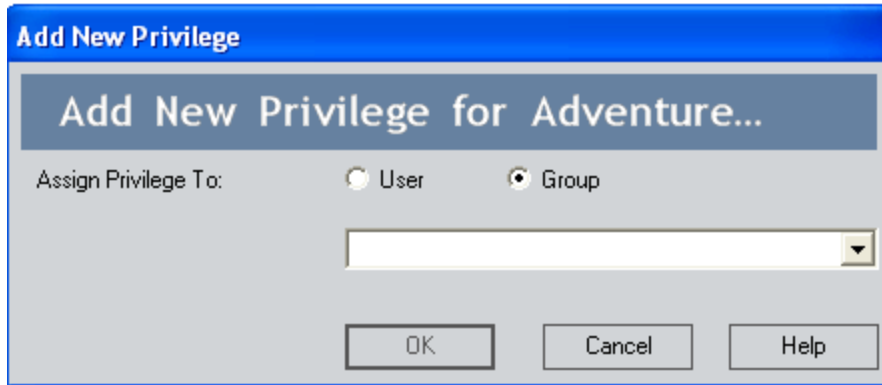
2. On the **Selected KPI** menu, click the **Manage Privileges** link.


The **Manage Privileges** window appears.



3. Click the **Add** button.

The **Add New Privilege** dialog box appears.



4. Select the option that corresponds to the type of privilege that you want to add: **User** or **Group**.
5. In the list box, which appears below the option buttons, click the  button, and select the user or group to which you want to grant access rights.

Note: Inactive Security Groups may appear in the list.

6. Click **OK**.
The user or group is added to the list on the **Manage Privileges** window.
7. In the new row, select the check box which corresponds to the type of privileges that you want to assign to the user or group:
 - **View:** Allows the user or group to view the KPI.
 - **Update:** Allows the user or group to edit the KPI.
 - **Delete:** Allows the user or group to delete the KPI.
8. Click the **Add** button again to assign additional privileges.

-or-

Click **OK** to save your changes and close the **Manage Privileges** window.

Revoking Access Rights to a KPI

To revoke access rights to a KPI from a user or group:

1. In the Meridium APM Framework application, on the [Key Performance Indicators page](#), in the list of KPIs, select the KPIs whose privileges you want to modify.

Note: If you select multiple KPIs, the **Manage Privileges** window will display only user and group privileges that are assigned to *all* selected KPIs. Any user or group privilege that does not apply to all selected KPIs will be hidden.

2. On the **Selected KPI** menu, click the **Manage Privileges** link.

The [Manage Privileges window](#) appears.



3. In the list, select the user or group whose privileges you want to revoke.
4. Click the **Remove** button.
5. Click **OK**.

Your changes are saved.

About Scorecard Privileges

The Scorecard privileges that you set up in the Meridium APM Framework application are applied in addition to family-level permissions defined for the Scorecard family and its related families. To [view a Scorecard](#), a user must first have at least View permissions on these families. In addition, a user must be granted privileges to specific Scorecards via the Meridium APM Framework application. By managing privileges, you [select the users and groups that should have access rights to a given Scorecard](#). Additionally, you can [revoke privileges for users and groups](#) that no longer need to access the Scorecard.

Note that Super Users and members of the MI Metrics Administrator Security Group can manage privileges for ALL Scorecards. Other users can manage the privileges for any Scorecard that they create by default, unless those privileges are revoked by an administrative user. Non-administrative users can also manage privileges for Scorecards to which they have been granted Update privileges.

Granting Access to a Scorecard

To grant a user or group access to a Scorecard:

1. In the Meridium APM Framework application, on the [Scorecards page](#), in the list of Scorecards, select the Scorecards whose privileges you want to modify.

Note: If you select multiple Scorecards, the **Manage Privileges** window will display only the user and group privileges that are assigned to ALL the selected Scorecards. Any user or group privilege that does not apply to all selected Scorecards will be hidden.

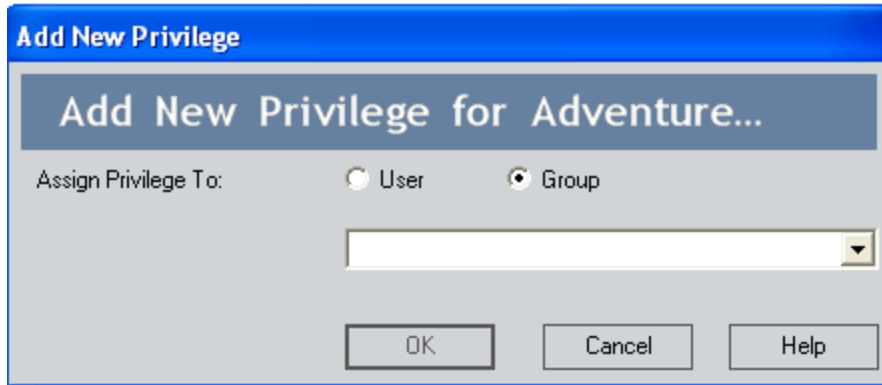
2. On the **Scorecard** menu, click the **Manage Privileges** link.


The **Manage Privileges** window appears.



3. Click the **Add** button.

The **Add New Privilege** dialog box appears.



4. Select the **Assign Privilege To** option that corresponds to the type of privilege that you want to add: **User** or **Group**.
5. In the list that appears below the option buttons, click the  button, and select the user or group to which you want to grant access rights.

Note: Inactive Security Groups may appear in the list.

6. Click **OK**.
The user or group is added to the list on the **Manage Privileges** window.
7. In the new row, select the check box that corresponds to the type of privileges that you want to assign to the user or group:
 - **View:** Allows the user or group to view the Scorecard.
 - **Update:** Allows the user or group to modify the Scorecard.
 - **Delete:** Allows the user or group to delete the Scorecard.
8. Click the **Add** button again to assign additional privileges.

Note: On the **Manage Privileges** window, you can also click the **Remove** button to revoke privileges from a user or group.

-or-

Click **OK** to save your changes and close the **Manage Privileges** window.

Revoking Access Rights to a Scorecard

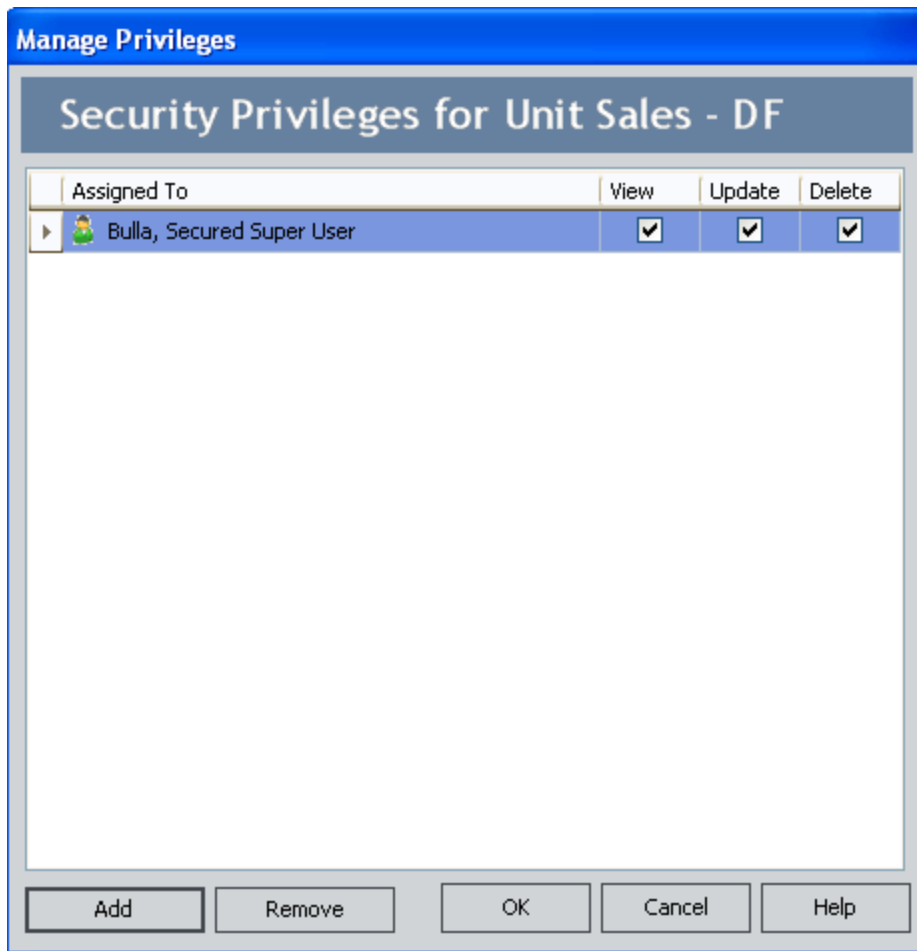
To revoke access rights to a Scorecard from a user or group:

1. In the Meridium APM Framework application, on the [Scorecards page](#), in the list of Scorecards, select the Scorecard whose privileges you want to modify. To select multiple Scorecards, press the Shift key or the Ctrl key.

Note: If you select multiple Scorecards, the **Manage Privileges** window will display only the user and group privileges that are assigned to ALL the selected Scorecards. Any user or group privilege that does not apply to all selected Scorecards will be hidden.

2. On the **Scorecard** menu, click the **Manage Privileges** link.

The **Manage Privileges** window appears.



Revoking Access Rights to a Scorecard

3. In the list, select the user or group whose privileges you want to revoke.
4. Click the **Remove** button.
5. Click **OK** to save your changes.

Metrics and Scorecards Security Groups

The following baseline Security Groups are provided for the Metrics and Scorecards module:

- **MI Metrics Administrator:** Provides users with full access to all Metrics and Scorecards features and functions.
- **MI Metrics User:** Provides users with view-only access to Metrics and Scorecards functionality, provided that they have been granted the necessary entity-level permissions.

The baseline privileges for these Security Groups are summarized in the following table.

Family	MI Metrics Administrator	MI Metrics User
Analysis Services Cube	View, Update, Insert, Delete	View
Human Resource	View	View
KPI	View, Update, Insert, Delete	View
KPI Measurement	View, Update, Insert, Delete	View
KPI Objective	View, Update, Insert, Delete	View
KPI Perspective	View, Update, Insert, Delete	View
Reference Document	View, Update, Insert, Delete	View
Scorecard	View, Update, Insert, Delete	View
Security Group	View	View
Security User	View	View
SSAS Servers	View, Update, Insert, Delete	View
Group Assignment	View	View
Has Privileges	View, Update, Insert, Delete	View

Family	MI Metrics Administrator	MI Metrics User
Has Reference Documents	View, Update, Insert, Delete	View
Has Sub Indicators	View, Update, Insert, Delete	View
Is a User	View	View
Has KPI Measurement	View, Update, Insert, Delete	View
Is Used By Scorecard	View, Update, Insert, Delete	View
User Assignment	View	None

In addition to performing functions associated with the family-level privileges described in this table, members of the MI Metrics Administrator Security Group:

- Can see the **Administer Cube Privileges** link on the **Metrics Manager Start Page** in the Meridium APM Framework application.
- Can manage privileges for all KPIs in the Meridium APM Framework application.
- Can manage privileges for all Scorecards in the Meridium APM Framework application.
- Have full access to all KPIs, Scorecards, and Cubes without needing to be granted additional privileges via the Meridium APM Framework application.

About Navigating the Metrics and Scorecards Module

Within the Meridium APM Framework application, the Metrics and Scorecards module provides the following navigational tools:

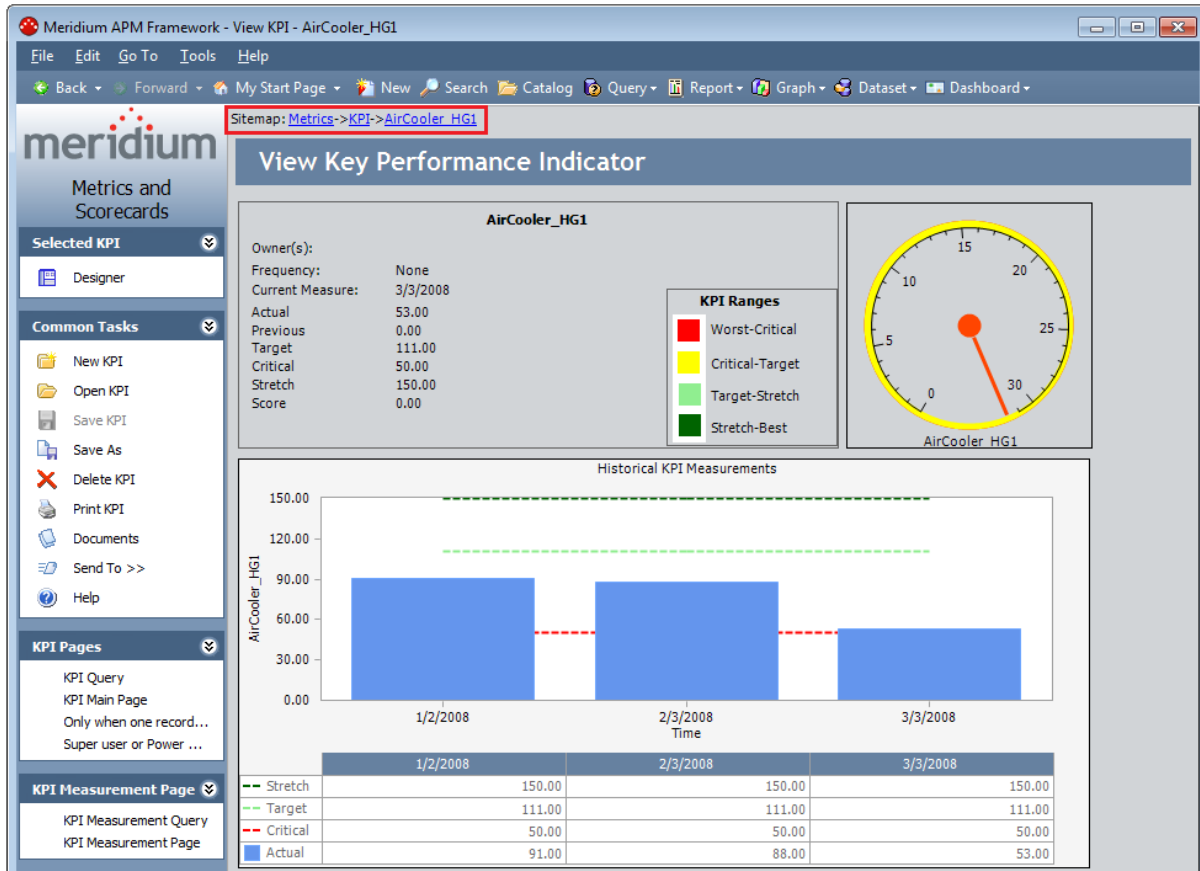
- A [start page](#) with links that provide access to various functions regarding [Cube Privileges](#), [Metric Views](#), [Key Performance Indicators](#), and [Scorecards](#).
- A [Site Map that you can use to navigate within the Metrics and Scorecards module](#). The Site Map indicates your current location and shows the typical path for arriving there. To access a previous page, you can click its hyperlinked name in the Site Map.

Note: If the Site Map includes the **Results for <Metric View>** page, the <Metric View> in the Site Map hyperlink will be the Catalog caption of the Metric View.

Using the Metrics and Scorecards Site Map

The Site Map in Metrics and Scorecards allows you to navigate from the current page to other pages in Metrics and Scorecards. The **Metrics** link, which provides access to the **Metrics and Scorecards Start Page**, will always be available. Links to other pages may also be available depending upon your location in the application. You can click any link that is available to access the corresponding page.

The following image shows an example of what the Site Map looks like on the **View KPI** page. A red outline has been added to the image to highlight the Site Map.



Overview of Metric Views

Metric Views allow you to preserve portions of multi-dimensional [cubes](#) that have been defined in SQL Server Analysis Services so they can be accessed for future analyses. A Metric View saves a cube's parameter selections (e.g., dimensions and levels) so that you can load these parameters automatically each time you want to view the information.

You can filter the data that is displayed in the Metric View by [adding slices](#). Slices allow you to specify a subset of data that you want to analyze. For example, you might have a Metric View that contains failure and inventory data on all of the bearing types that exist in a particular facility. Using this Metric View, you can see:

- All the bearing types that exist in the facility.
- How many of each bearing type exists in the facility.
- How many bearing failures occurred last year in the facility.

Adding slices to this Metric View could allow you to view a more specific subset of data to determine:

- Which type of bearing fails most often?
- How much did it cost last year to fix the bearings that failed most often?

A Metric View is displayed in both graph and table formats on the **Results for <Metric View>** page, where <Metric View> is the Catalog caption of the saved Metric View. After you create a Metric View you can:

- [Add a filter to the Metric View.](#)
- [Drill-down in the Metric View.](#)
- [Link a different Metric View to the current Metric View.](#)
- [Export a Metric View.](#)
- Customize the appearance of the Metric View graph, using the standard graph features.

 **Note:** You will be able to view and manage only the Metric Views that are based upon cubes associated with Analysis Services Cube records to which you have been [granted permission to access](#) by an administrative user.

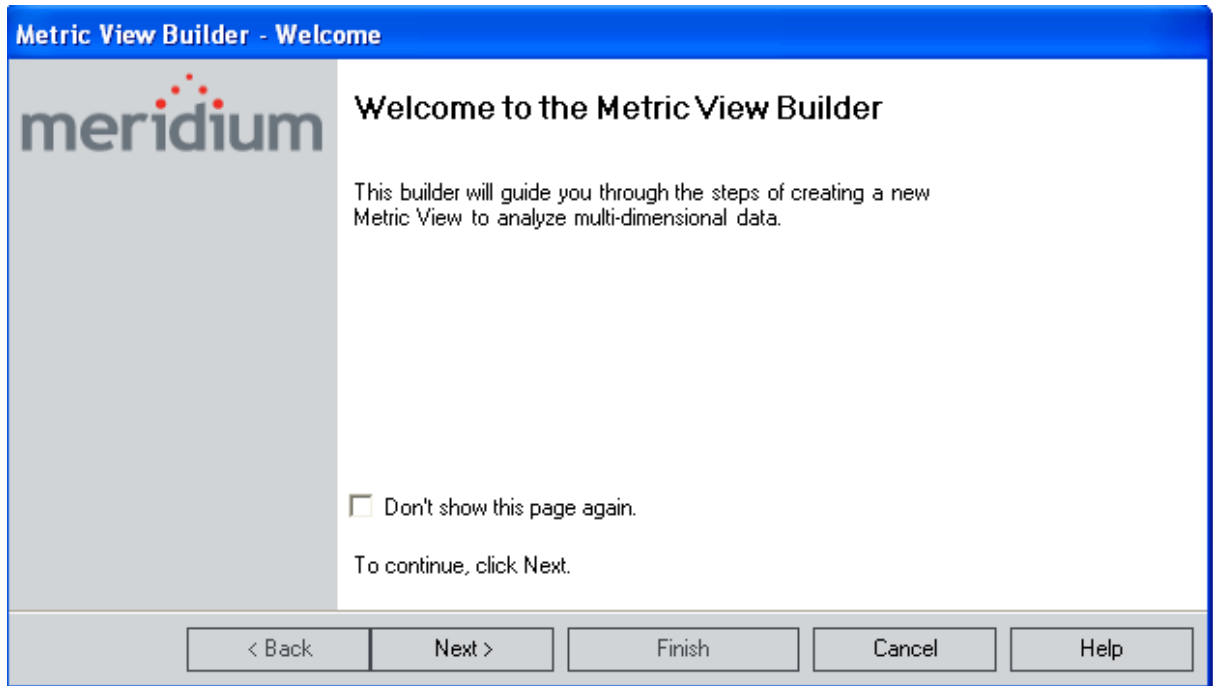
Creating a New Metric View

The **Metric View Builder** takes you step-by-step through the process of creating a Metric View. When you create a Metric View, you select dimensions associated with a cube to display and compare specific data.

To create a Metric View:

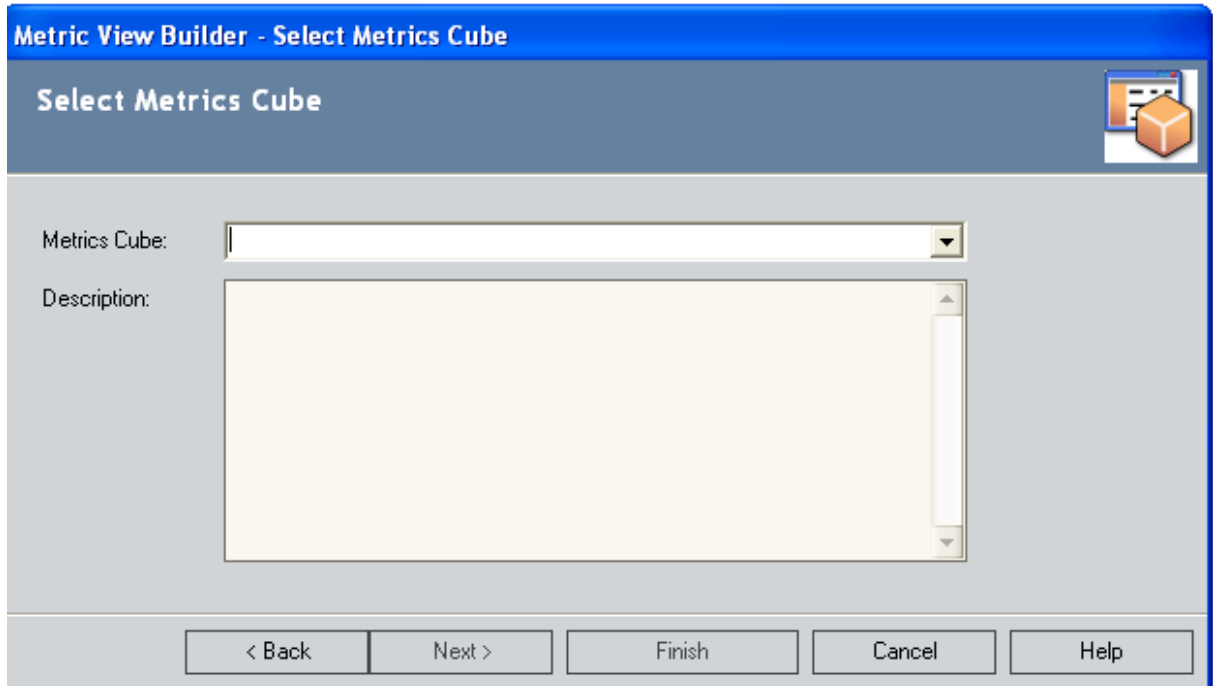
1. On the [Metrics and Scorecards Start Page](#), click the **Create Metric View** link.

The **Metric View Builder** appears, displaying the **Welcome** screen.

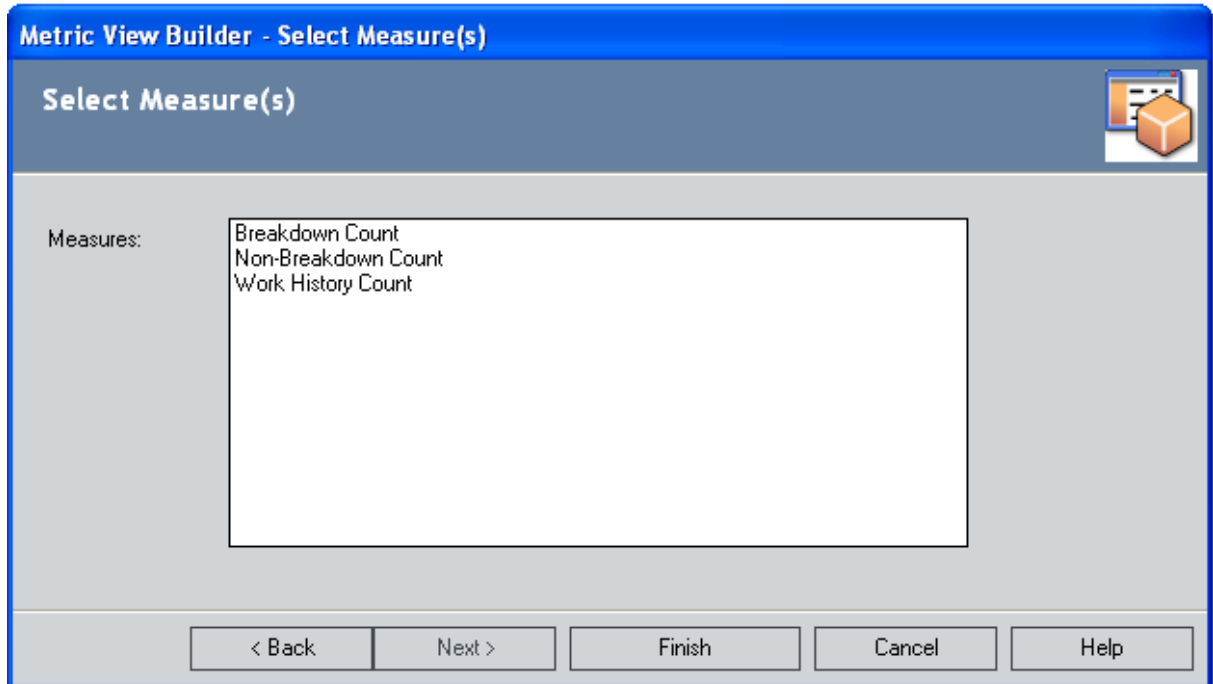


2. Click the **Next** button.

The **Select Metrics Cube** screen appears.



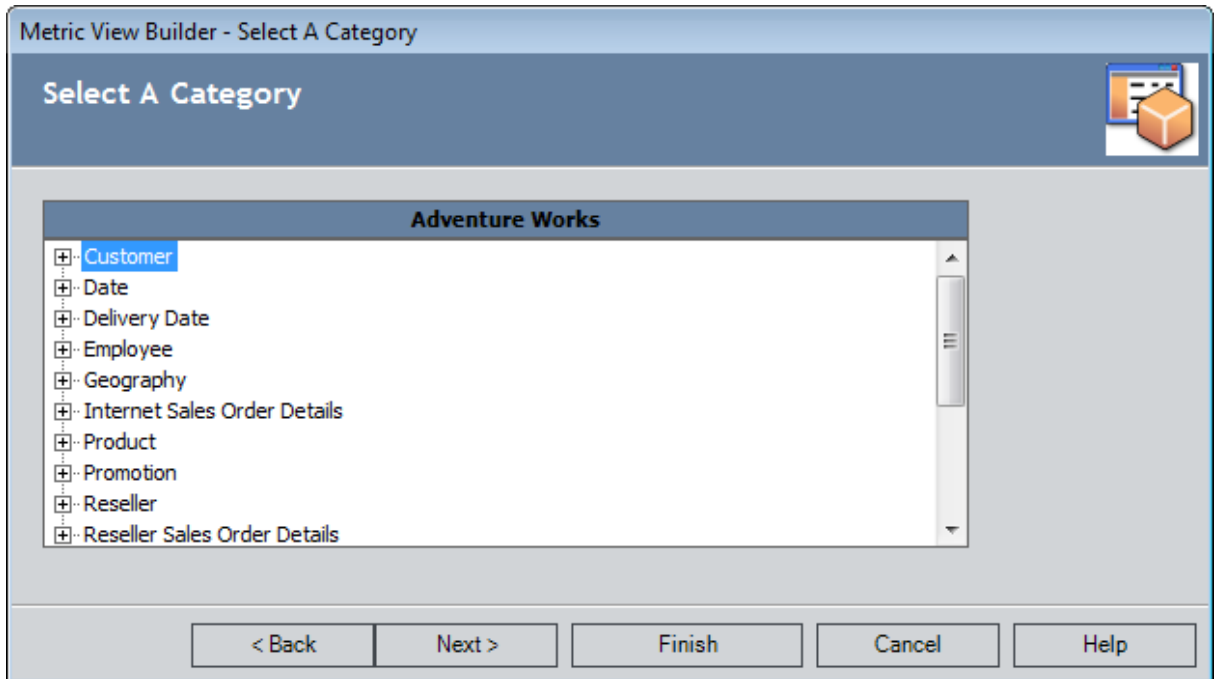
3. In the **Metric Cube** list, select the cube for which you want to create the Metric View. The list contains all Analysis Services Cube records that represent cubes that have been defined in Analysis Services. This list is limited to the Analysis Services Cube records that you have [permission to access](#). As you select a cube, its description appears in the **Description** display box.
4. Click the **Next** button.
The **Select Measure(s)** screen appears.



Note: If the SSAS server is not available or the Analysis Services Cube you select is not available under the SSAS server, an error message will appear and you will not be able to access the **Select Measure(s)** screen.

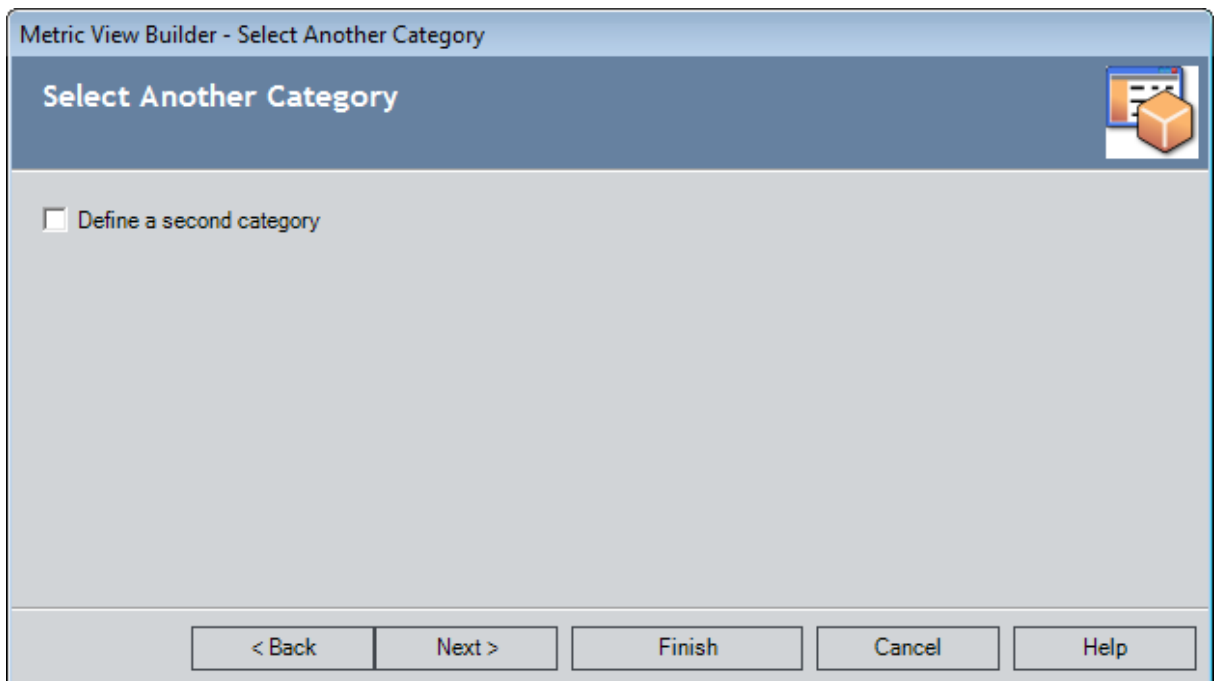
5. From the list of available measurements, select the desired measures.
6. Click the **Next** button.

The **Select A Category** screen appears.



7. Select a category, and click the **Next** button.

The **Select Another Category** screen appears.



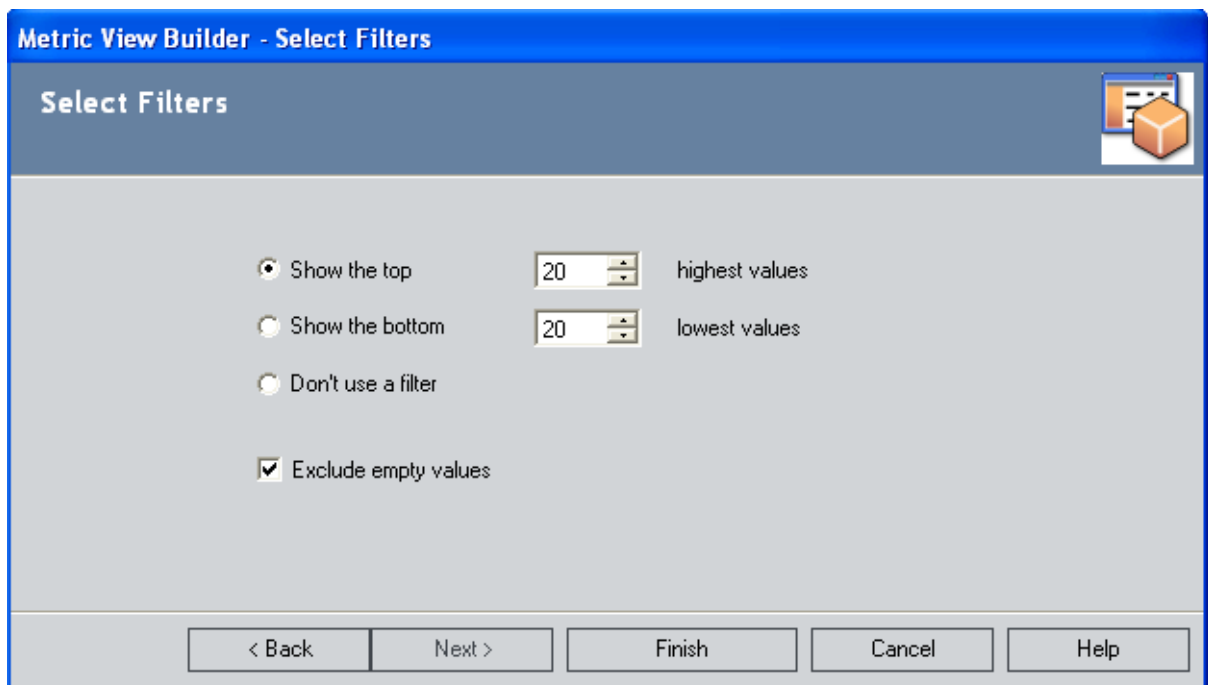
8. If you want to define another category, select the **Define a second category** check box, click the **Next** button, select a second category, and then click the **Next** button.

Note: You cannot select the same value twice. If you select a value on the **Select a Category** screen, that value will not appear on the **Select Another Category** screen. If you select a value that has subcategories, the value will appear on the **Select Another Category** screen so you can select one of the subcategories, but if you try to select that value twice, when you click the **Next** button, an error message will appear.

-or-

If you do not want to define another category, leave the check box cleared, and click the **Next** button.

The **Select Filters** screen appears.



The screenshot shows a dialog box titled "Metric View Builder - Select Filters". The main area is titled "Select Filters" and contains the following options:

- Show the top highest values
- Show the bottom lowest values
- Don't use a filter
- Exclude empty values

At the bottom of the dialog box, there are five buttons: "< Back", "Next >", "Finish", "Cancel", and "Help".

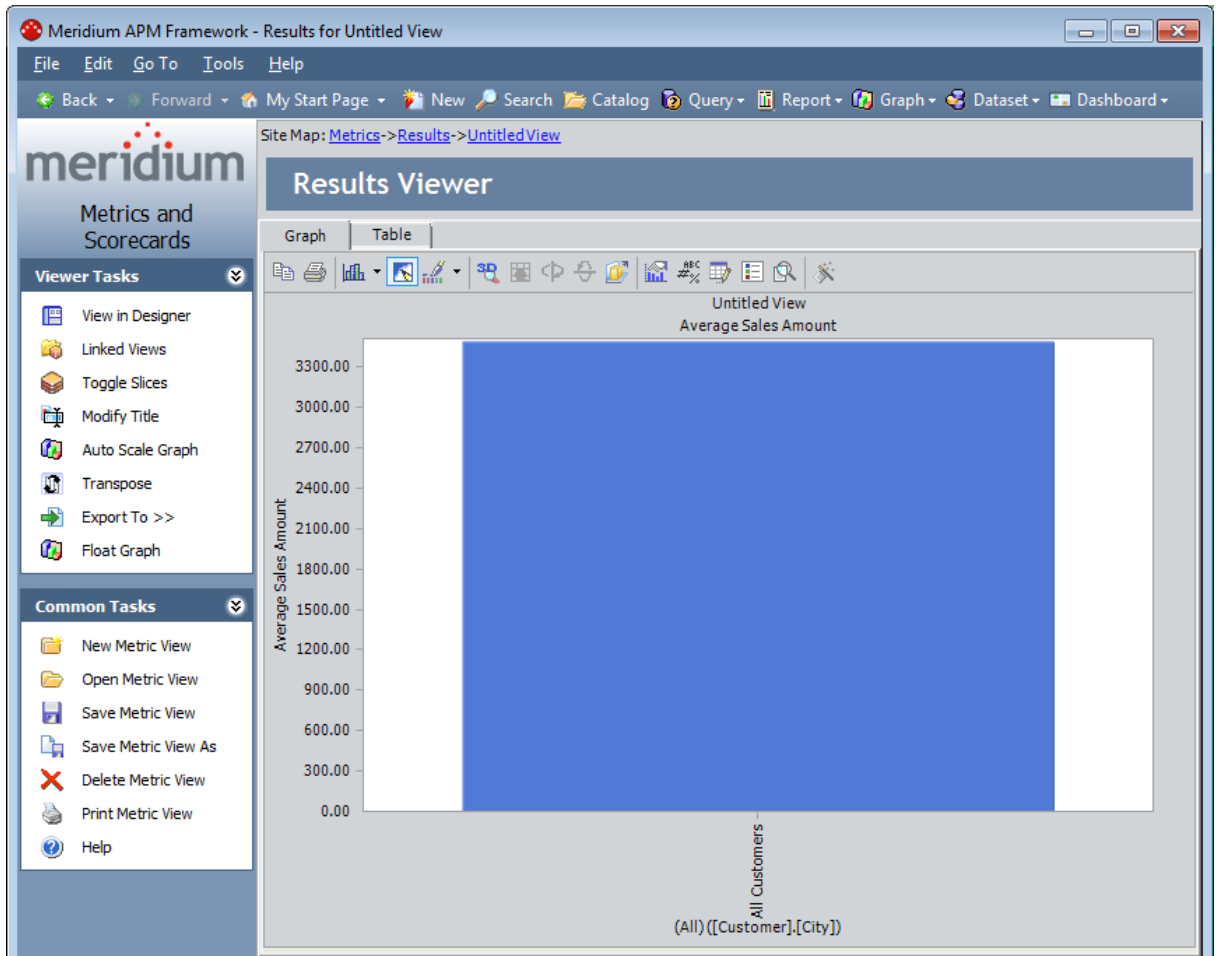
9. Select filters for the results. You can choose:

- **Show the top __ highest values** or **Show the bottom __ lowest values** to return the results which meet the criteria. The default number is 20. You can change the number by typing another number in the field or clicking the up or down button.
- **Don't use a filter** if you do not want the results to be filtered.
- **Exclude Empty Values** if you do not want empty values to be returned.

10. Click the **Finish** button.

The View is created and displayed on the [Results for <Metric View> page](#).

Creating a New Metric View



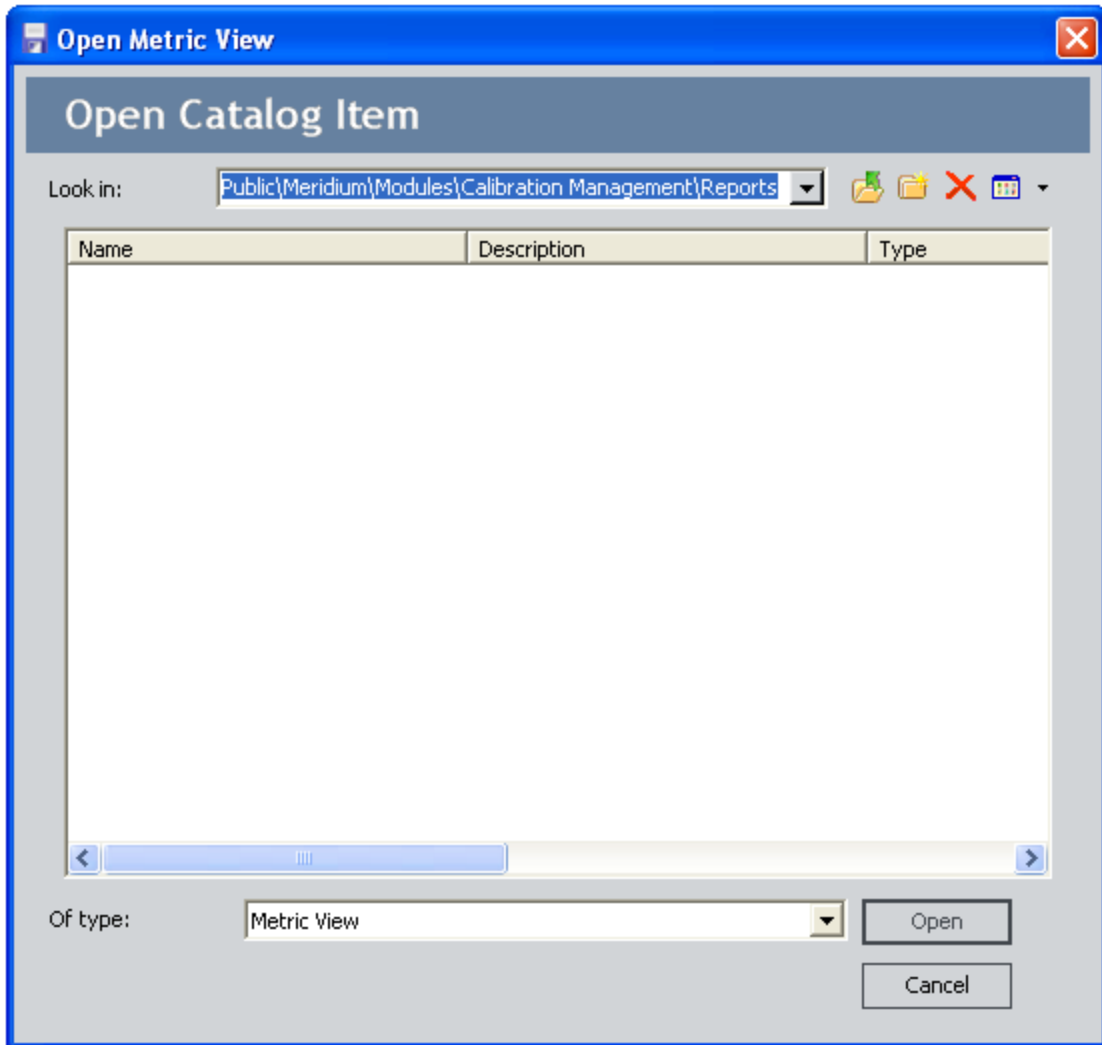
Opening an Existing Metric View

You can open any Metric View from the **Metrics and Scorecards Start Page** or directly from the Meridium APM Catalog. In either case, to open a Metric View, you must first be [granted permission to access the cube](#) upon which the Metric View is based.

To open an existing Metric View:


1. On the [Metrics and Scorecards Start Page](#), click the **Open Metric View** link.

The **Open Metric View** dialog box appears.



2. Navigate to the Metric View that you want to open, select it, and click the **Open** button.

The view appears on the [Results for <Metric View> page](#), where <Metric View> is the Catalog caption of the Metric View.

 **Hint:** You can view the Metric View on the **Design** page by clicking the **View in Designer** link on the **Viewer Tasks** menu.

Aspects of the Results for <Metric View> Page

When you [create a new Metric View](#) or [open an existing Metric View](#), the Results for <Metric View> page will appear. The Results for <Metric View> page offers two views of the Metric View, presented on two different tabs: **Graph** and **Table**.

Graph Tab

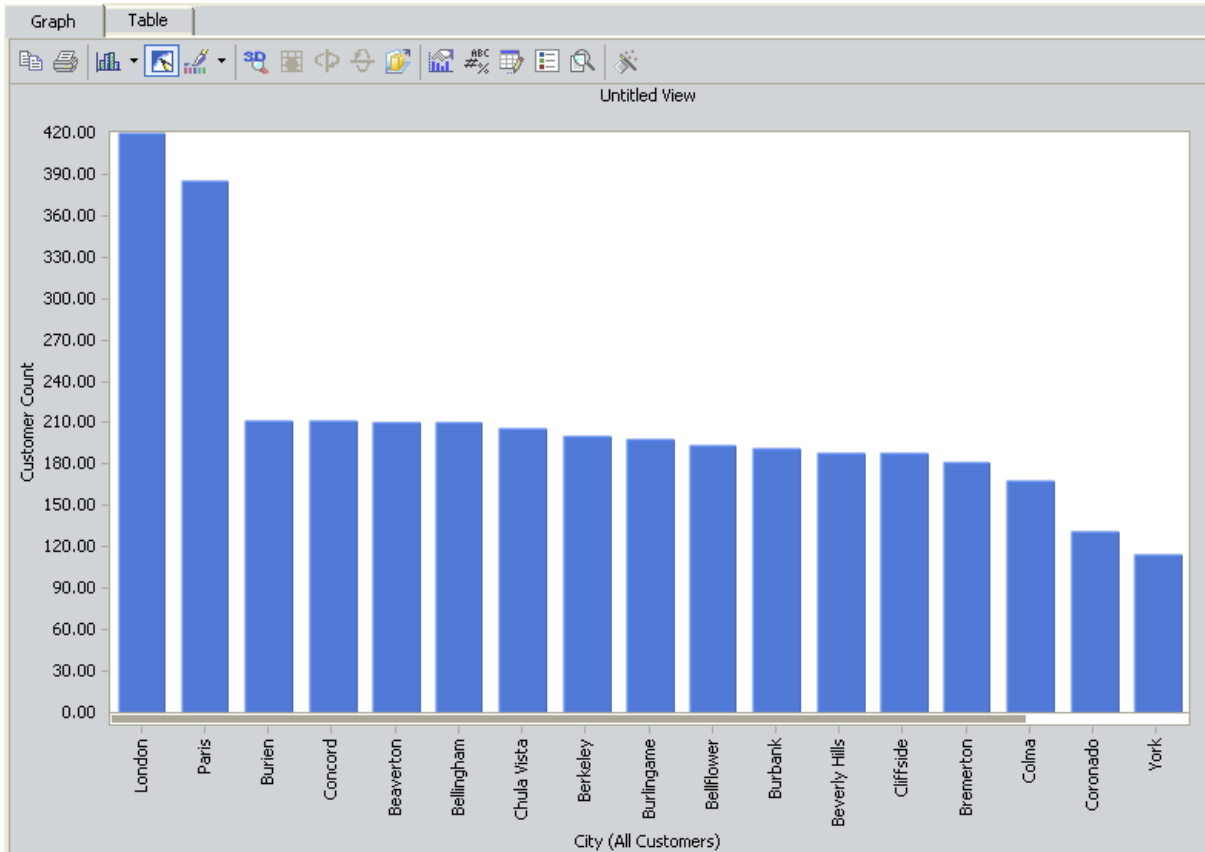


Table Tab

Customer Count	
London	420
Paris	386
Burien	212
Concord	212
Beaverton	210
Bellingham	210
Chula Vista	206
Berkeley	200
Burlingame	198
Bellflower	194
Burbank	192
Beverly Hills	188
Cliffside	188
Bremerton	182
Colma	168
Coronado	132
York	115
Shawnee	111
Downey	110
Lebanon	108

Viewer Tasks Menu

The **Viewer Tasks** menu offers various options depending on whether the **Graph** tab or the **Table** tab is selected. The following image shows the options that are displayed when you are viewing the **Graph** tab.

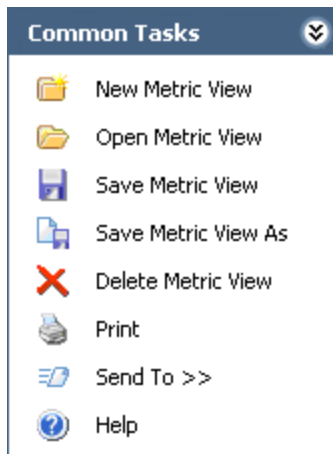
The **Viewer Tasks** menu on the **Results for <Metric View>** page contains the following links:

- **View in Designer:** Displays the Metric View on the [Design page](#), where you can see the columns, rows, slices, and measures included in the cube.
- **Linked Views:** Displays the **Linked Views** page, where you can manage the [linked views](#) for the current Metric View and perform tasks, such as displaying a list of Views, adding a View, or deleting a View.
- **Reload Metric View:** Refreshes the cube view with its saved values.

Note: After you click the **Reload Metric View** link, you must click the **View in Designer** link and then navigate back to the **Results for <Metric View>** page to see the refreshed values.

- **Drill Up:** [Drills up](#) to the last dimension. This link appears only when you are viewing the **Graph** tab after you have drilled down into the graph.
- **Toggle Slices:** [Displays or hides the slices at the bottom of the page](#). If the slices are currently displayed, clicking this link will hide them. If the slices are currently not displayed, clicking this link will display them.
- **Modify Title:** Displays the **Modify Title** dialog box, where you can [modify the title of the graph](#). This link appears only when you are viewing the **Graph** tab.
- **Auto Scale Graph:** Resets the Minimum, Maximum, and Step values of the y-axis scale(s) to **Auto**, which creates a scale that is appropriate for the datapoints that are plotted. You can click this link to revert the graph to the automatic scale after setting a manual scale. This option will reset the [right scale, the left scale](#), or both, depending on which exists.
- **Transpose:** Replaces the column members with the row members.
- **Export To:** Displays a submenu that lets you [export the View](#) to Bitmap, HTML, or XML.
- **Float Graph/Table:** [Opens the graph or table in its own window](#). You can un-float the graph or table by closing the window that appears.

Common Tasks Menu



The **Common Tasks** menu on the **Results for <Metric View>** page contains the following links:

- **New Metric View:** Displays the **Metric View Builder**, which you can use to [create a new Metric View](#).
- **Open Metric View:** Displays the **Open Metric View** dialog box, where you can [open an existing Metric View](#).
- **Save Metric View:** Lets you [save the Metric View to the Catalog](#).
- **Save Metric View As:** Displays the **Save As** dialog box, where you can save the Metric View to a new Catalog location in the Catalog or with a different name.
- **Delete Metric View:** After asking for confirmation, [deletes the current Metric View](#).
- **Print Metric View:** Displays the **Print Dialog** box, where you can specify how you want to print the Metric View.
- **Send To:** Displays a submenu with options that let you provide a link to the current page on your desktop (create shortcut), in an email message, or on a Home Page.
- **Help:** Displays the context-sensitive Help topic for the **Results for <Metric View>** page.

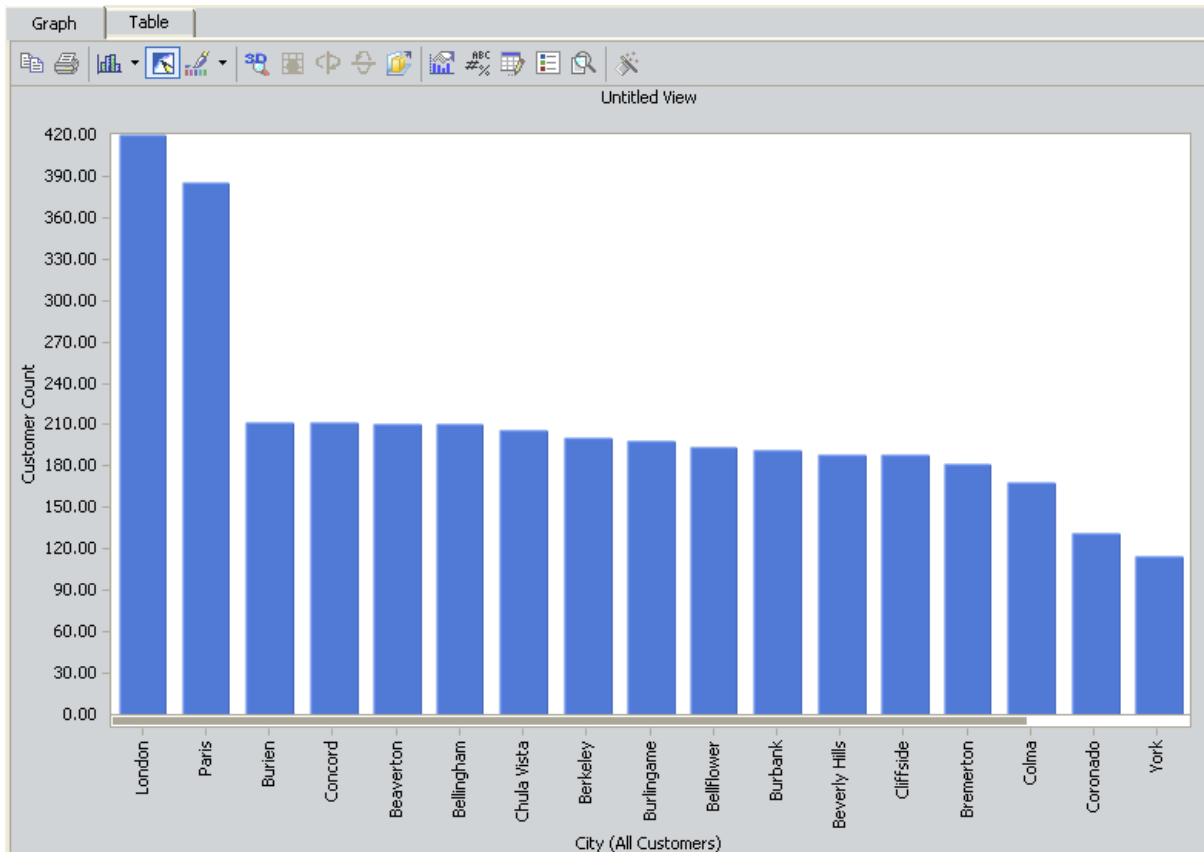
Overview of the Table Tab

The **Table** tab displays the same information in a grid format that is displayed on the [Graph tab](#) in a graphical format. The table title displays the Catalog caption of the Metric View.

Customer Count	
London	420
Paris	386
Burien	212
Concord	212
Beaverton	210
Bellingham	210
Chula Vista	206
Berkeley	200
Burlingame	198
Bellflower	194
Burbank	192
Beverly Hills	188
Cliffside	188
Bremerton	182
Colma	168
Coronado	132
York	115
Shawnee	111
Downey	110
Lebanon	108

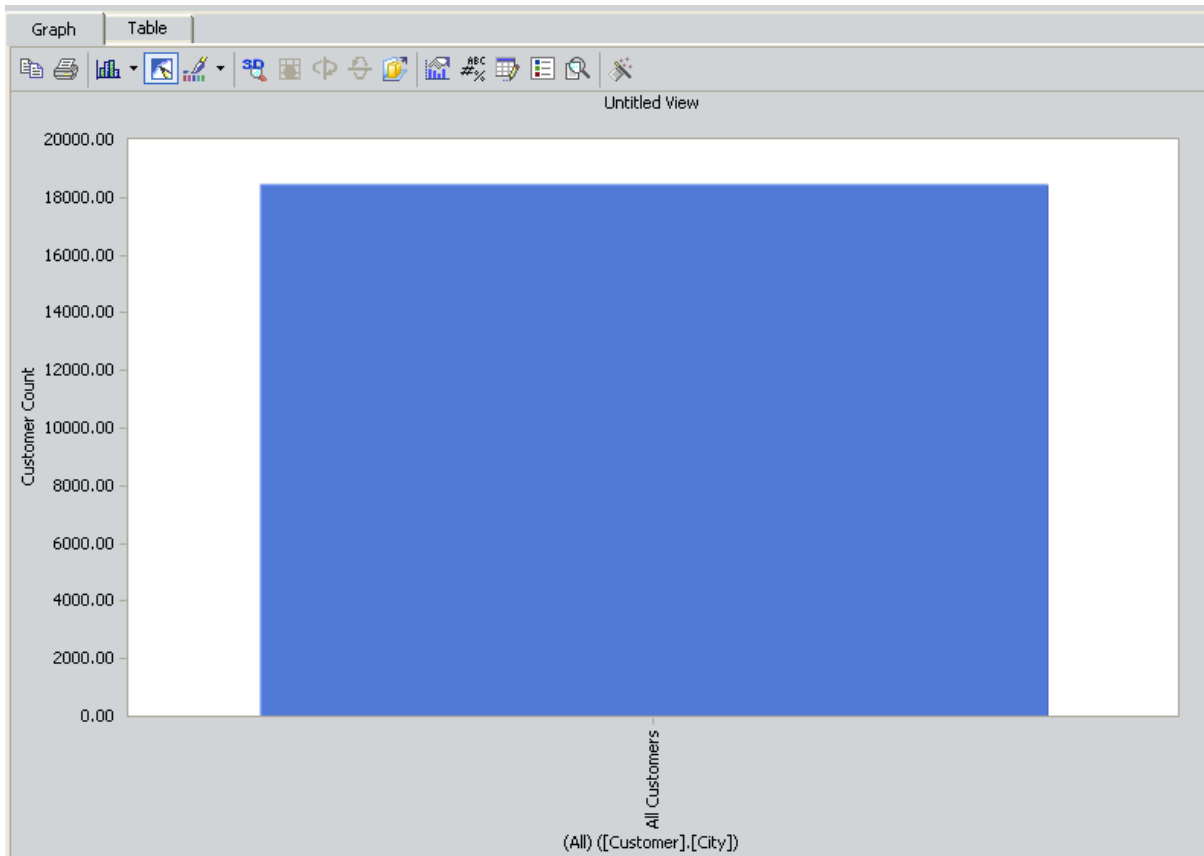
Each row in the table corresponds to a value that appears along the x-axis of the graph. If the rows of data correspond to actual Meridium APM records, the first column will be hyperlinked so that you can open that record in the Record Manager. The columns in the table represent the values that are plotted on the y-axis of the graph. Using the table tab, you can see at a glance the actual values that have been plotted on the graph. For example, the preceding table shows the number of customers for various cities. These same values are represented graphically in the following image.

Overview of the Table Tab



The values displayed on the **Table** tab are dynamic and always correspond to the current graphical view. For example, if you [drill up](#) to see all customers for all cities, the following information might be displayed.

Overview of the Table Tab



In this case, the **Table** tab would be updated as shown in the following image.

The figure shows a table titled 'Untitled View' with the 'Table' tab selected. The table has two columns: 'Customer Count' and an unlabeled column for city names. The data is as follows:

Customer Count	
420	London
386	Paris
212	Burien
212	Concord
210	Beaverton
210	Bellingham
206	Chula Vista
200	Berkeley
198	Burlingame
194	Bellflower
192	Burbank
188	Beverly Hills
188	Cliffside
182	Bremerton
168	Colma
132	Coronado
115	York
111	Shawnee
110	Downey
108	Lebanon

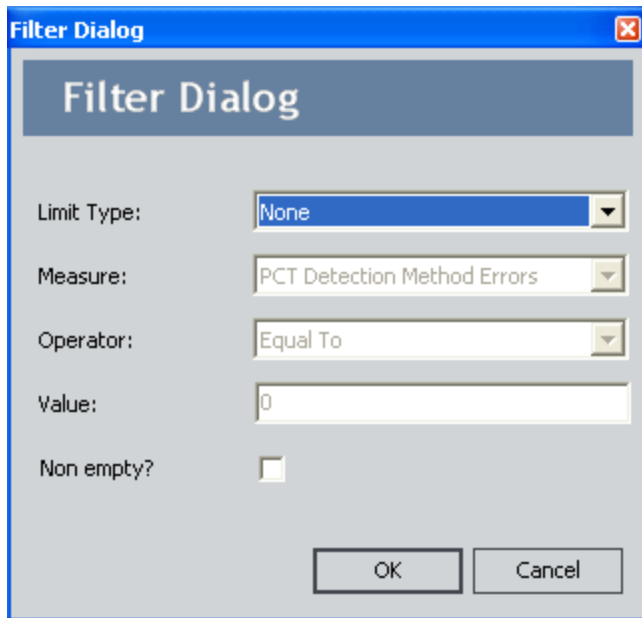
Overview of the Table Tab

If desired, you can [filter](#) or [sort the values](#) in the table.

About the Filter Options

If desired, you can [add a filter](#) to the table on the **Table** tab on the **Results for <Metric View>** page to view a subset of the information that is currently displayed. A table that has a filter applied shows the columns or rows that meet the criteria you specify for a given column or row and temporarily hides the columns or rows that you do not want displayed. You can [modify the filter](#), [remove the filter](#), or [add multiple filters](#), if desired.

The filter options that you select on the **Filter Dialog** box function as a formulaic expression, meaning that all the selections that you make work together to create a logical statement, which tells the Meridium APM system which columns or rows to exclude from the table.



The following filter options are available on the **Filter Dialog** box:

- **Limit Type:** A list that contains options that you can select to display a specific *subset* of the data that is currently displayed. After you select an option in the **Limit Type** list, the **Measure** and **Operator** options are enabled.

The **Limit Type** list contains the following options.

- **None:** Displays the table as it appears when you first access it. If a filter was applied to the table in the **Metric View Builder**, that filter is still applied. When this option is selected, all options except the **Non empty?** check box are disabled.
- **Top Count:** Displays the top X number of values that appear in the column that you specify in the **Measure** list, where X is the number that you specify in the **Value** text box.

After you select this option in the **Limit Type** list, the **Measure** list and the **Value** text box are enabled, and the default value in the **Value** text box is *0*. You can modify this value, if desired.

- **Top Percent:** Displays the top *X* percent of values that appear in the column that you specify in the **Measure** list, where *X* is the number (i.e., percentage) that you specify in the **Value** text box.

After you select this option in the **Limit Type** list, the **Measure** list and **Value** text box are enabled, and the default value in the **Value** text box is *100*. You can modify this value, if desired.

- **Bottom Count:** Displays the lower *X* number of values that appear in the column that you specify in the **Measure** list, where *X* is the number that you specify in the **Value** text box.

After you select this option in the **Limit Type** list, the **Measure** list and the **Value** text box are enabled, and the default value in the **Value** text box is *0*. You can modify this value, if desired.

- **Bottom Percent:** Displays the lower *X* percent of values that appear in the column that you specify in the **Measure** list, where *X* is the number (i.e., percentage) that you specify in the **Value** text box.

After you select this option in the **Limit Type** list, the **Measure** list and **Value** text box are enabled, and the default value in the **Value** text box is *100*. You can modify this value, if desired.

- **Measure Filter:** Displays the values in the table that meet the requirements that you select in the remaining options.

After you select the **Measure Filter** option in the **Limit Type** list, all the remaining options are enabled. Note that only this option enables the **Operator** option.

- **Measure:** A list that contains the column names that appear on the **Select Measure(s)** screen in the **Metric View Builder**. You can use this option to select a column that appears in the table and to which you want to apply the filter.
- **Operator:** A list that contains operators, which function as the rule in the formula expression. Operators let you *compare* the values in the rows in the table with the value that appears in the **Value** text box to exclude only the rows that meet the criteria specified in the formula expression.

The **Operator** list contains the following options:

- **Greater Than:** Displays the values in the *X* column that are *greater than* the *Y* value.
- **Less Than:** Displays the values in the *X* column that are *less than* the *Y* value.
- **Equal To Or Greater Than:** Displays the values in the *X* column that are *equal to or greater than* the *Y* value.
- **Equal To Or Less Than:** Displays the values in the *X* column that are *equal to or less than* the *Y* value.

- **Value:** A text box where you can specify a numeric value to which the values in the column that you selected in the **Measure** list will be compared. The value in this text box completes the formulaic expression.
- **Non empty:** A check box that lets you specify whether or not you want to display only those rows that contain values. You can select this check box to display only rows that contain a value (i.e., not empty), or clear this check box if you want to display rows that contain no value. Note that this check box is always enabled.

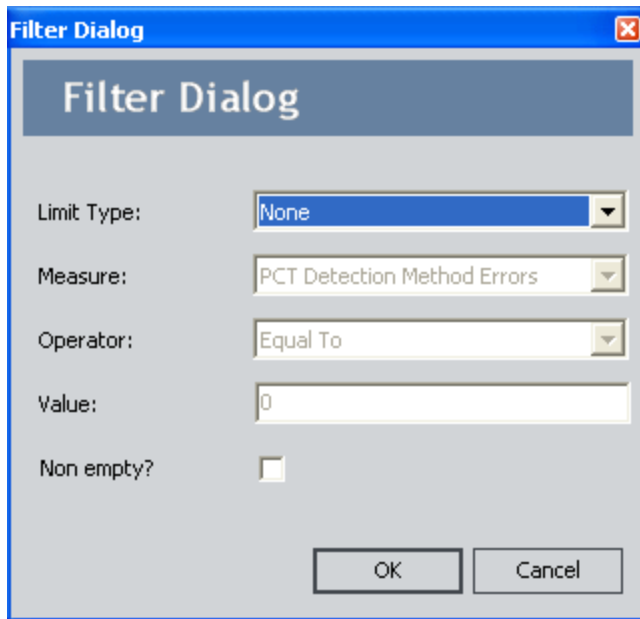
Note: If you select the **Bottom Count** option and the **Non empty?** option, fields that contain a value of 0 will be included in the bottom count value that you specified and *then* filtered from the table as empty values. For example, if the results contain 10 fields whose value is 0 and you want to see in the results the bottom 20 values, if you select the **Non empty** check box, the results will contain only 10 fields.

Adding a Filter to the Table

To filter the table on the Results for <Metric View> page:

1. Right-click any column or row header, and click **Add Filter**.

The **Filter Dialog** box appears.



2. Select the desired [filter options](#).
3. Click **OK**.

The filter is applied, and the table is refreshed to show only the data that satisfies your filter options.

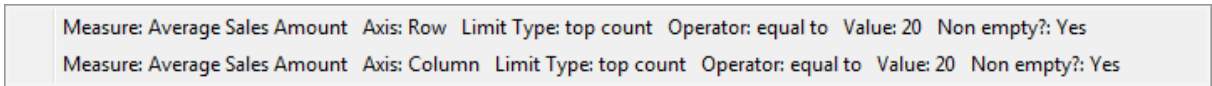
Note: You can add additional filters by repeating these steps.

Modifying a Filter

To modify a filter that has already been applied:

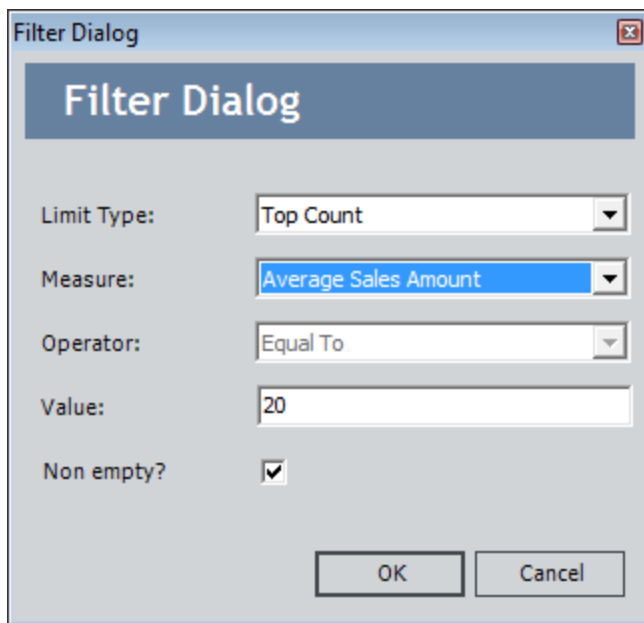
1. Right-click any column or row header, and point to **Edit Filter**.

A submenu appears displaying a list of filters that have already been applied to the table.



2. Click the filter that you want to modify.

The **Filter Dialog** box appears, displaying the current filter selections.



3. Modify the filter selections as desired.
4. Click **OK**.

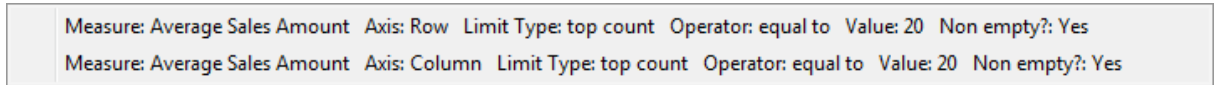
Your changes are saved, and the table is refreshed to reflect the changes.

Removing a Filter

To remove a filter that has been applied to the table:

1. Right-click any column or row header, and point to **Remove Filter**.

A submenu appears displaying the current filter selections.



2. Click the filter that you want to remove.

The filter is removed from the table, and the table is refreshed to reflect the changes.

Sorting the Table

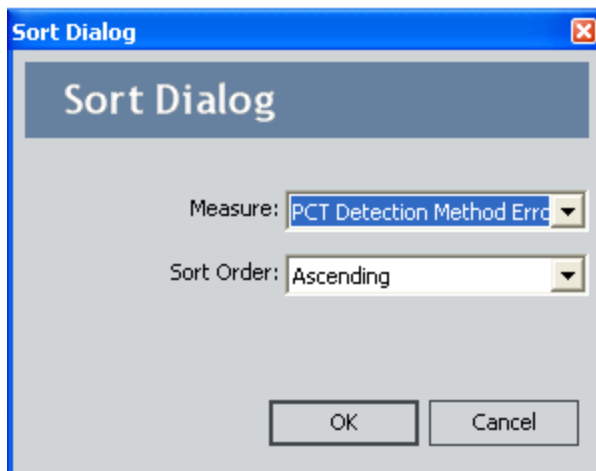
When you sort a column, the rows in the table are arranged according to the contents of the column you choose to sort. You can sort any column either in ascending or descending order. When you use the *Ascending* option, the data in the column will be sorted in ascending alphanumeric order: 0-9 then A to Z. When you use the *Descending* option the data in the column will be sorted in descending alphanumeric order: 9 to 0 then Z to A. For example, to sort a list of repair costs in order from the highest cost to the lowest cost, sort the **Repair Cost** column using the *Descending* option.

Note: If there are multiple columns in the table, the rows will be sorted by the total amount of data in those columns. For example, if **Row A** has values of 2,000 in the **Repair Cost** column and 2,000 in the **Maintenance Cost** column, **Row A** will be sorted according to a total of 4,000.

To sort a column in the table on the Results for <Metric View> page:

1. Right-click the column header of the column that you want to sort, and click **Add Sort**.

The **Sort Dialog** box appears.



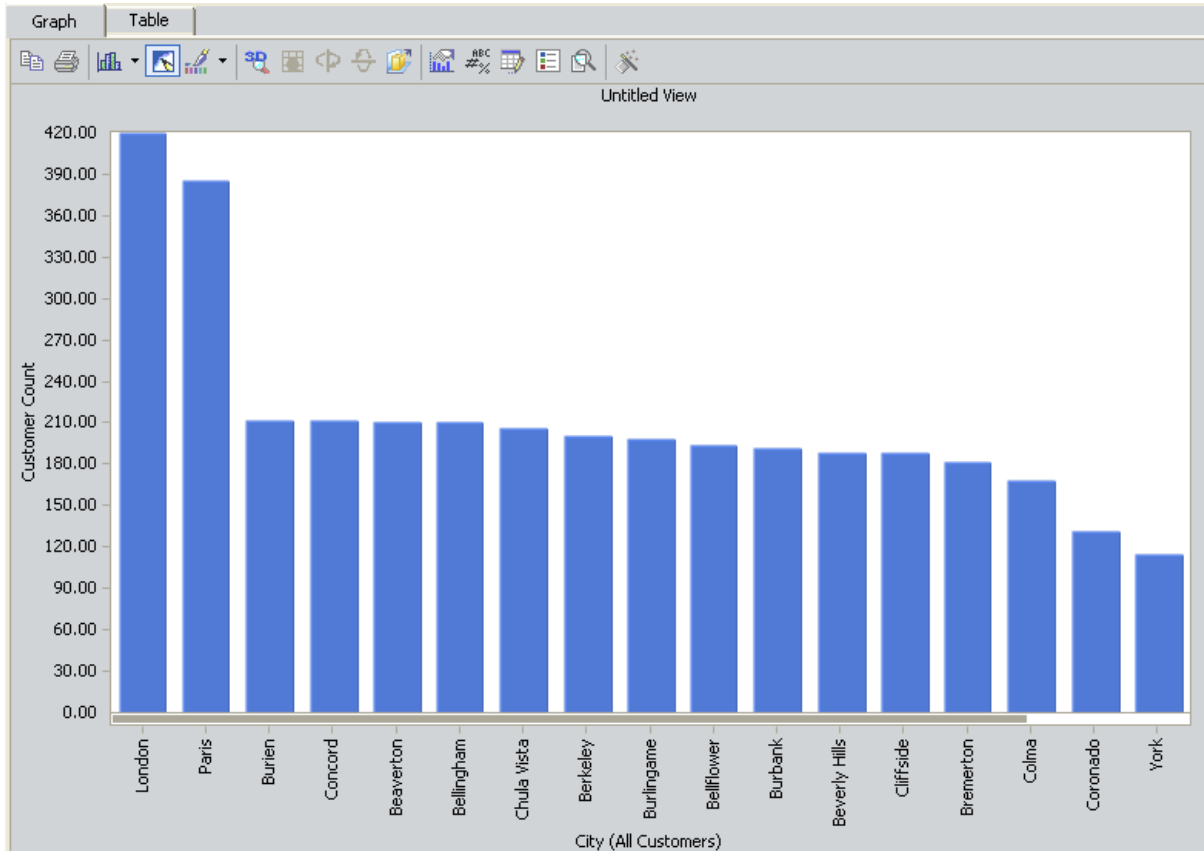
2. Select the desired options. You can select from the following options:
 - **Measure:** Select the measurement for the sorting.
 - **Sort order:** Select *Ascending* or *Descending*.
3. Click **OK**.

Your sort selections are applied to the table.

Note: You can add another level of sorting by repeating these steps.

Overview of the Graph Tab

The **Graph** tab on the **Results for <Metric View>** page provides a visual representation of the Metric View. The graph title displays the Catalog caption of the Metric View.



Various options are available on the **Graph** tab. Most of the available options, particularly those that let you modify the appearance of the graph, are similar to the options that are available in standard graphs. This documentation assumes that you are familiar with the standard functionality of the Graph Tool, and as such, limits discussion of the **Graph** tab to features that are specific to Metric Views.

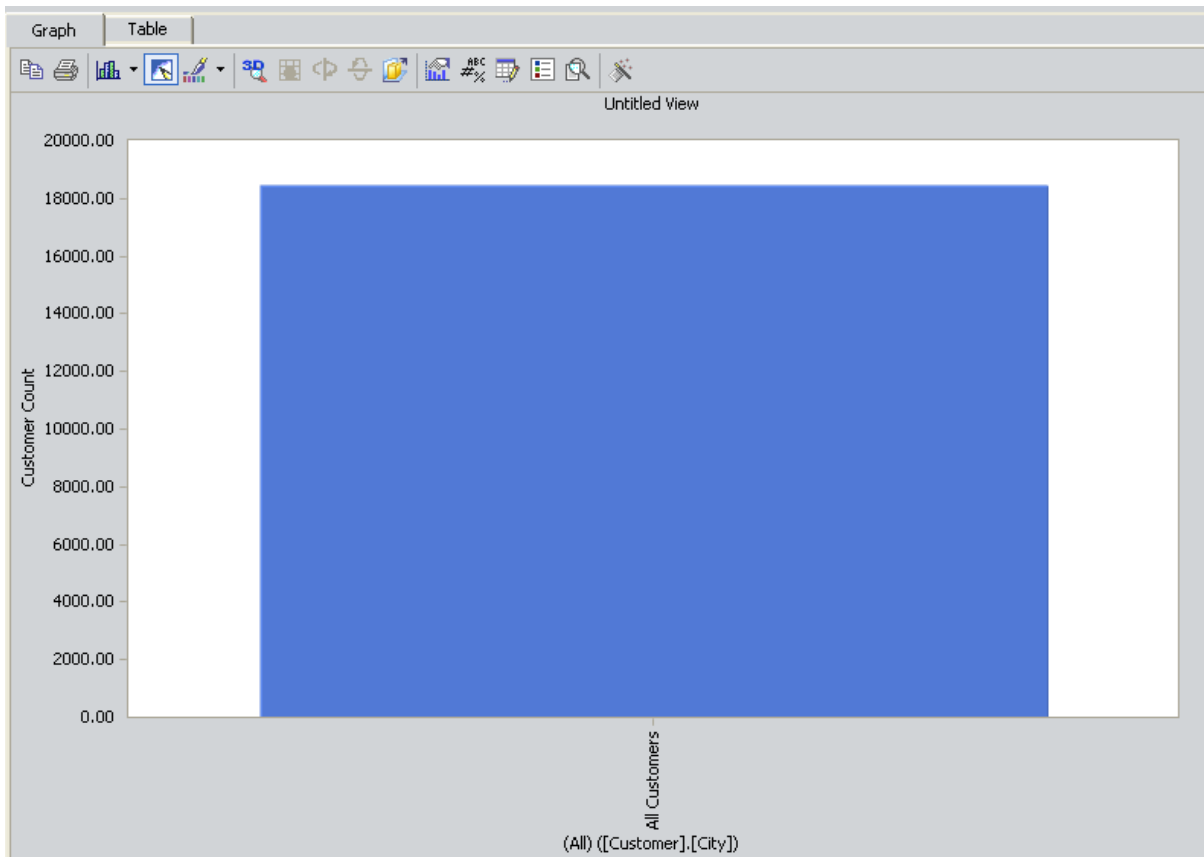
About the Graph Toolbar



The graph toolbar appears at the top of the graph on the **Graph** tab on the **Results for <Metric View>** page. This toolbar is the same as the standard toolbar that appears on the **Graph** page. It offers options that let you change the appearance of the graph.

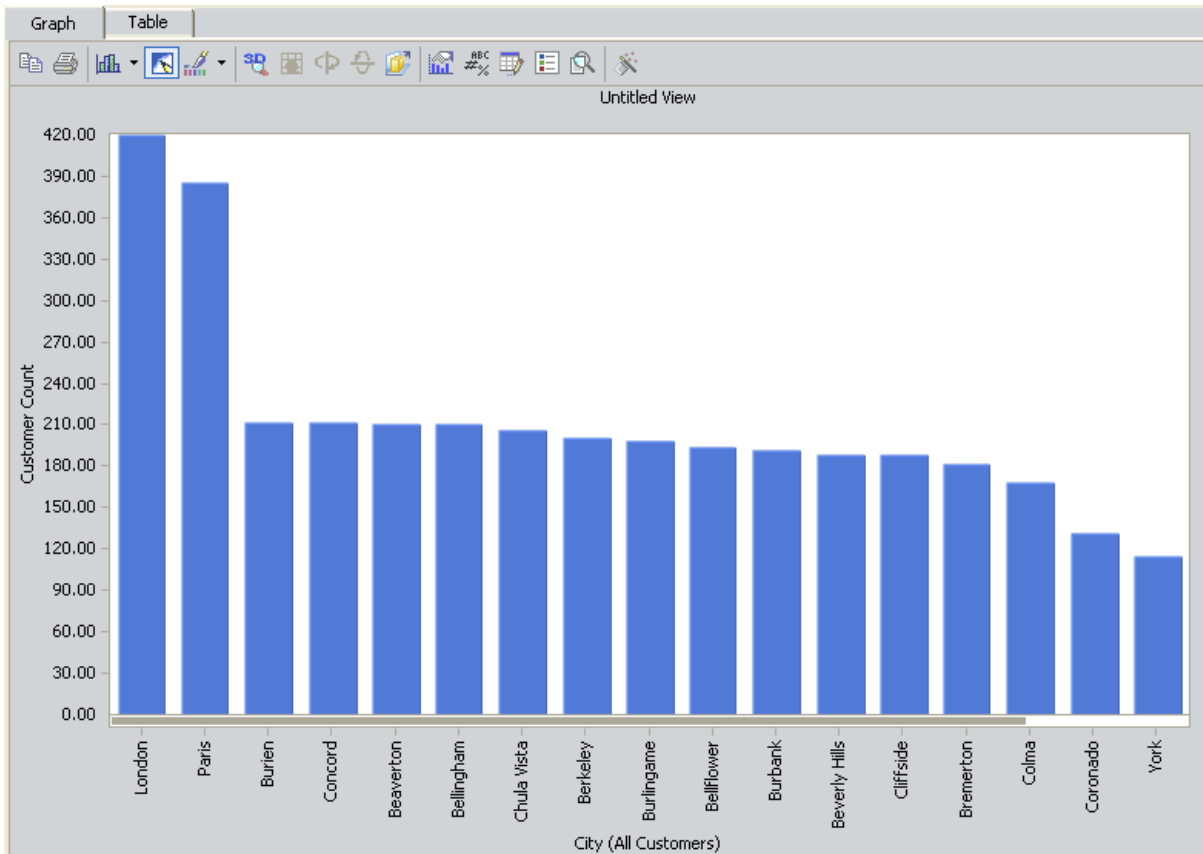
About the Drill Down and Drill Up Features

By drilling down into a graph, you can view the details of each item represented in the graph. The items contain different levels, each with a greater amount of detail about a given category. For example, consider the following graph.



This graph shows the number of customers for various cities. You can see that across all cities, there are 18,000 customers. When you drill down into the All Customers bar, you can see which specific cities have the highest and lowest number of customers, as the following image shows.

About the Drill Down and Drill Up Features




You can continue to drill down into each bar to view additional details about each category. After you drill down to the desired level of detail, you can drill up to return to the previous level.

Drilling Down Into a Metric View

To drill down into a Metric View:

1. Position your pointer over the area of the graph where you want to view details.

Your pointer appears as a hand icon , indicating that you can drill down into the selected component.

2. Right-click the area, point to **Drill Down**, and then choose from a submenu of available levels.

The details of the selected component are revealed.

Drilling Up in a Metric View

After you have [drilled down into a Metric View](#), you can drill up to return to the previous level.

To drill up in a Metric View:

1. On the **Common Tasks** menu, click the **Drill Up** link.
The system drills up one level.
2. Continue clicking the **Drill Up** link until you reach the desired level of detail.

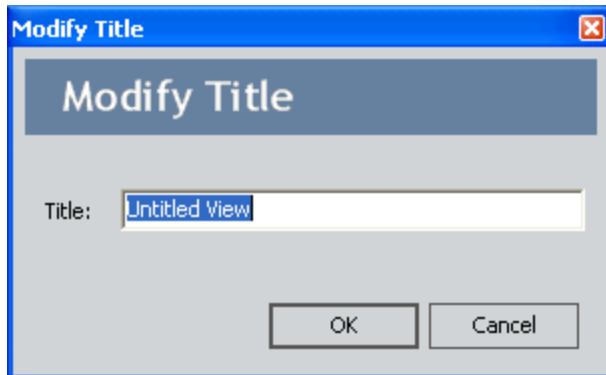
Modifying the Title of the Graph

The following instructions provide details on modifying the title of a graph.

To change the title of a graph:

1. On the **Results for <Metric View>** page, on the **Graph** tab, on the **Viewer Tasks** menu, click the **Modify Title** link.

The **Modify Title** dialog box appears, displaying the current title of the graph in the **Title** text box.



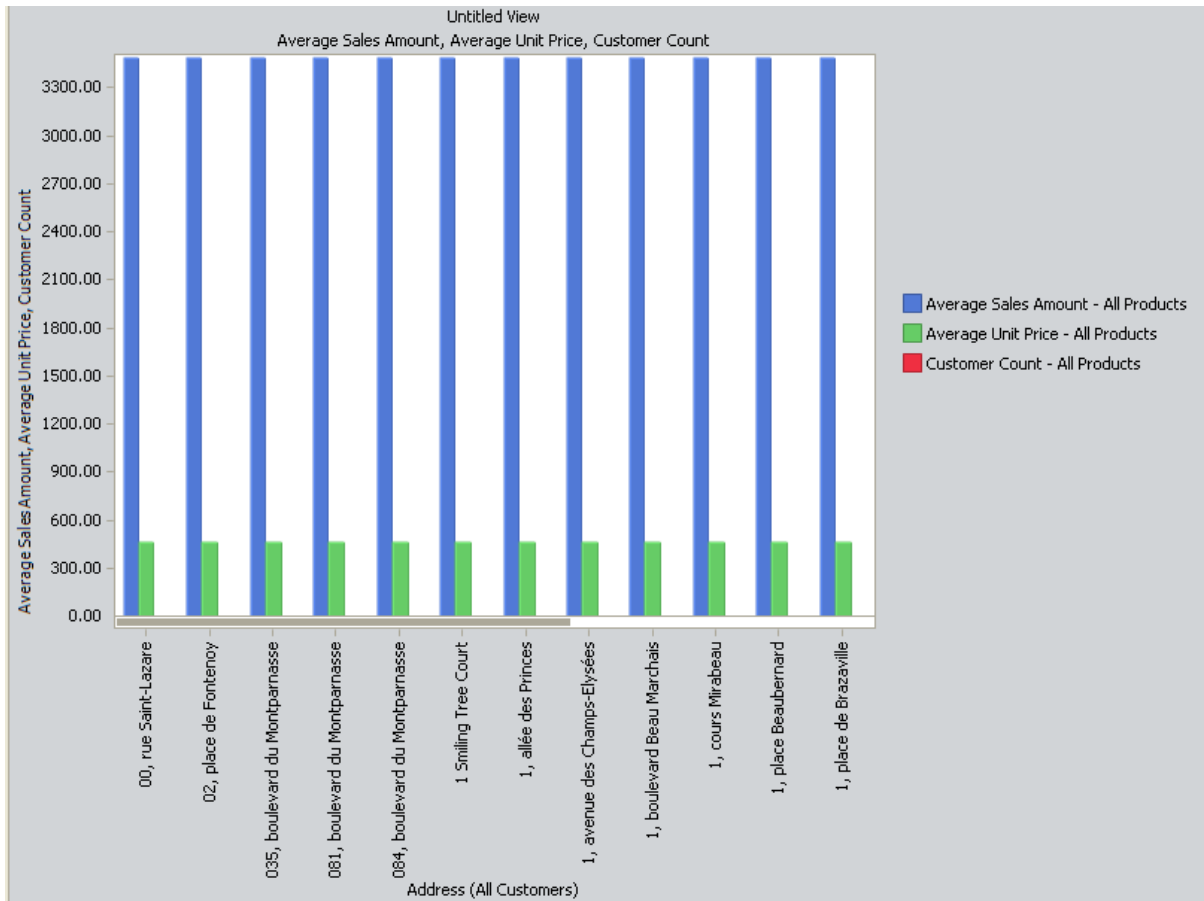
2. In the **Title** text box, type the new title.
3. Click **OK**.

The graph title is updated with the new title. Note that you will need to [save the Metric View](#) in order to save the updated title permanently.

About Right and Left Y-Axis Scales

When you create a new Metric View, the y-axis label and scale appear by default on the left side of the [graph](#). If the graph contains multiple measures for each x-axis category, all the measures initially use the same scale, which is determined automatically using the plotted minimum and maximum values. The default scale is not necessarily appropriate for all the plotted values.

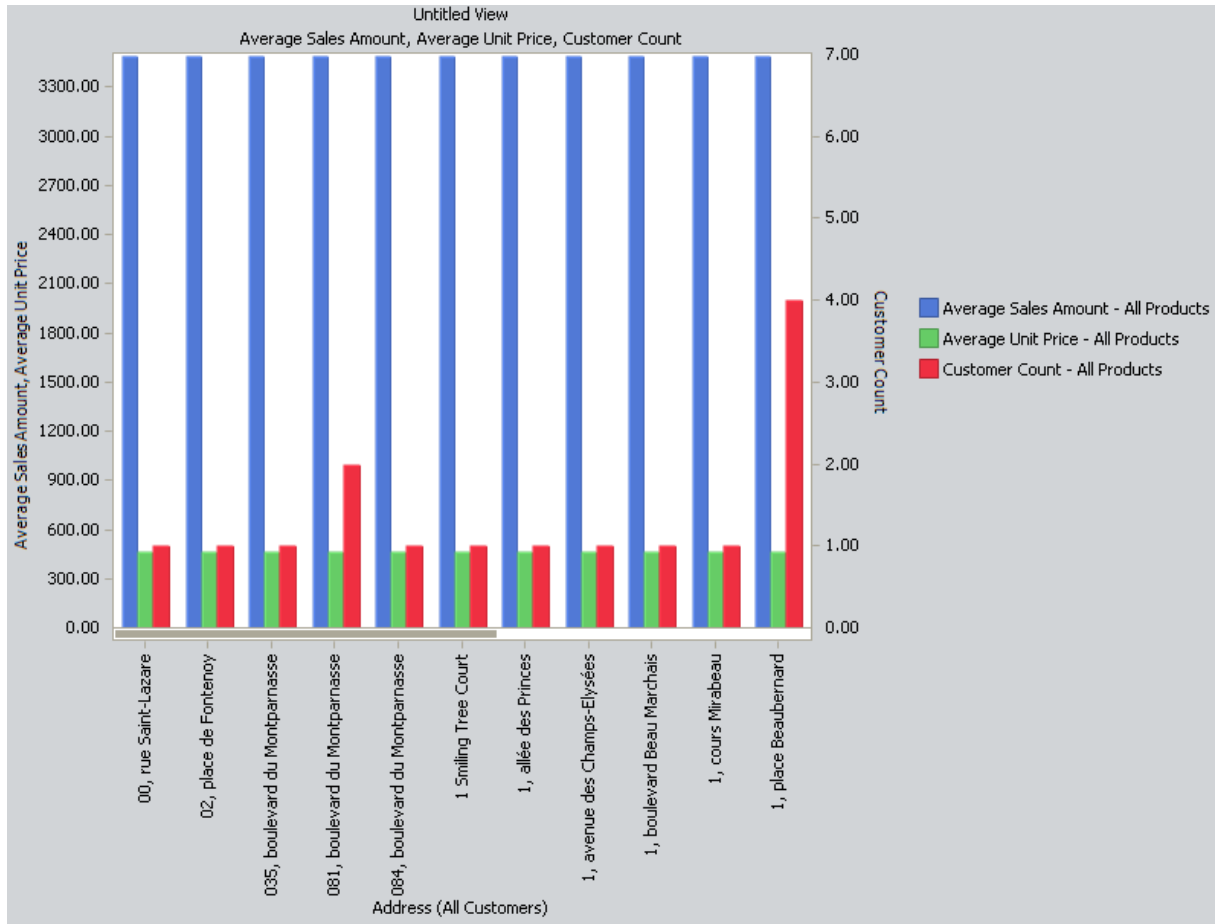
For example, consider the following graph, which shows the Average Sales Amount, Average Unit Price, and Customer Count for a group of customers. In this example, note that the upper limit of the y-axis scale has been determined automatically using the largest plotted value: \$3,491 as the average sales amount for all products.



In this figure, the **Customer Count** values are so small in comparison to the other plotted values that they do not appear on the graph.

When a single scale is not appropriate for plotting all the values on the y-axis, you can use *two* scales, one on the right and one on the left and choose which values should use each scale. For example, look what happens to the graph shown above when we plot the **Customer Count** against its own scale on the right:

About Right and Left Y-Axis Scales



Plotted against a much smaller scale, the red bars now appear on the graph. This has no effect on the Average Sales Amount values, which are still plotted against the left y-axis scale.

Choosing the Right or Left Y-Axis Scale for a Measure

In a Metric View graph, you can choose whether each measure is plotted against the left y-axis scale or the right y-axis scale. By default, all measures will be plotted against the left y-axis scale in a new Metric View graph. You can move any or all measures to the right y-axis scale, as desired. After you move a measure to the right y-axis scale, you can move it back to the left y-axis scale, if desired.

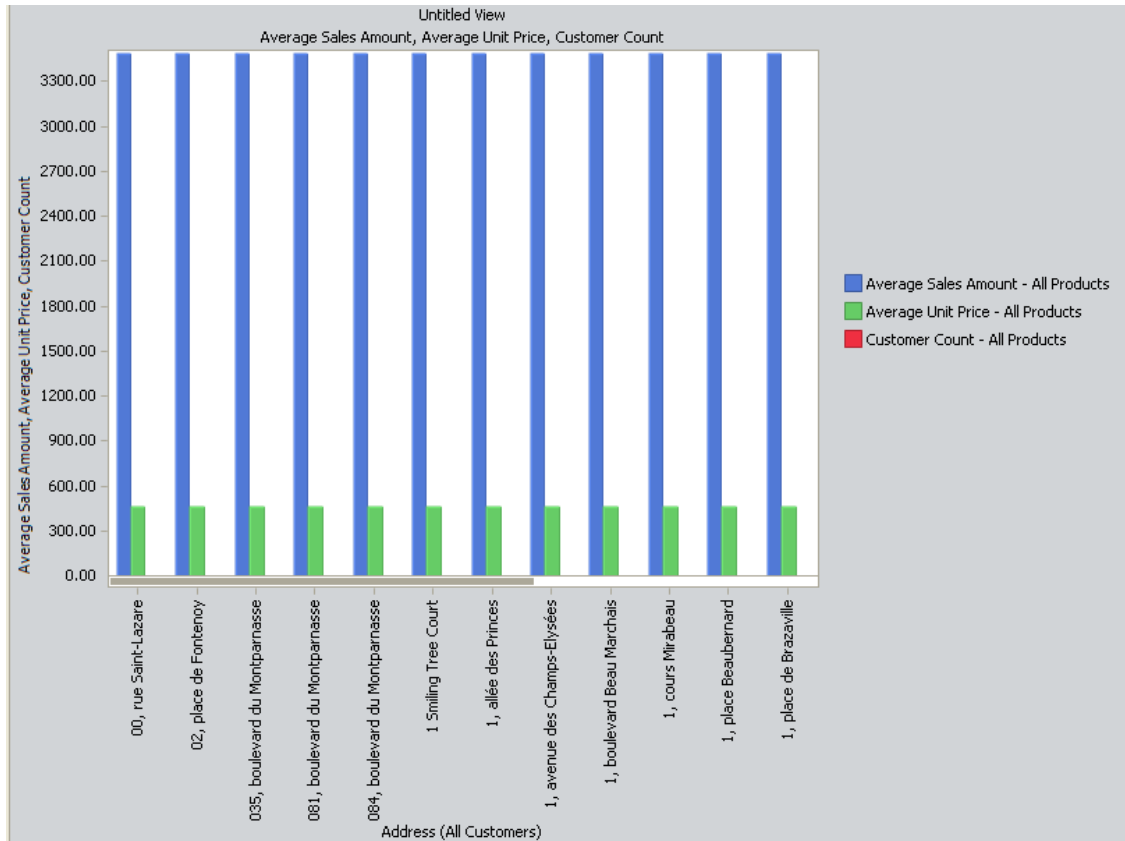
When you move a measure from one scale to the other, the Meridium APM system will reset the minimum and maximum values of *both* scales automatically as appropriate for all measures plotted against each scale, even if either scale had previously been set to use a manual range via the **Properties** dialog box. Therefore, we recommend that you *first* choose which scale to plot each measure against and *then* adjust the scale manually if needed.

To move a measure to the scale opposite from where it is currently plotted:

1. On the graph, right-click an item representing the measure that you want to move.

The item that you click will depend upon which gallery is being used. For example, in a bar graph, you would point to any bar associated with any value for the measure that you want to move. In the following graph, you would point to a green bar to move the **Average Unit Price**.

Choosing the Right or Left Y-Axis Scale for a Measure



Hint: Alternatively, you can point to the item on the legend representing the measure that you want to move. This is especially useful in cases where the values are so small with respect to the current scale that they do not appear on the graph (e.g., **Customer Count** on the preceding graph).

2. Point to **Y-Axis**, and then click:

- **Right:** To move the measure to the right scale.
- **Left:** To move the measure to the left scale.

The measure is moved to the side that you selected. Note that the y-axis scales are reset automatically based on values that are plotted against them. You can [modify the ranges manually](#), if desired. When you [save the Metric View](#), your y-axis scale selections will be saved along with it.

About the Drill Through Feature

In a Metric View, you can drill through certain values in a table or a graph to view the underlying intersection data or source data. The intersection data displayed on the [Drill Through page](#) is made up of data that is associated with the end value.

For example, suppose you have a Metric View that measures the total number of work orders over time. In this case, you could drill through the total number of work orders value for 2005 and view the underlying data that is associated with the work order, such as the equipment to which the work order was assigned, the department in which the equipment was located, and the manufacturer of the equipment to which the work order was assigned. Drill through data provides you with a more complete understanding of the Metric View.

The availability of the Drill Through feature and the data that is displayed in the **Drill Through** window is determined by how the associated cube has been configured in Analysis Services.

Accessing the Drill Through Page

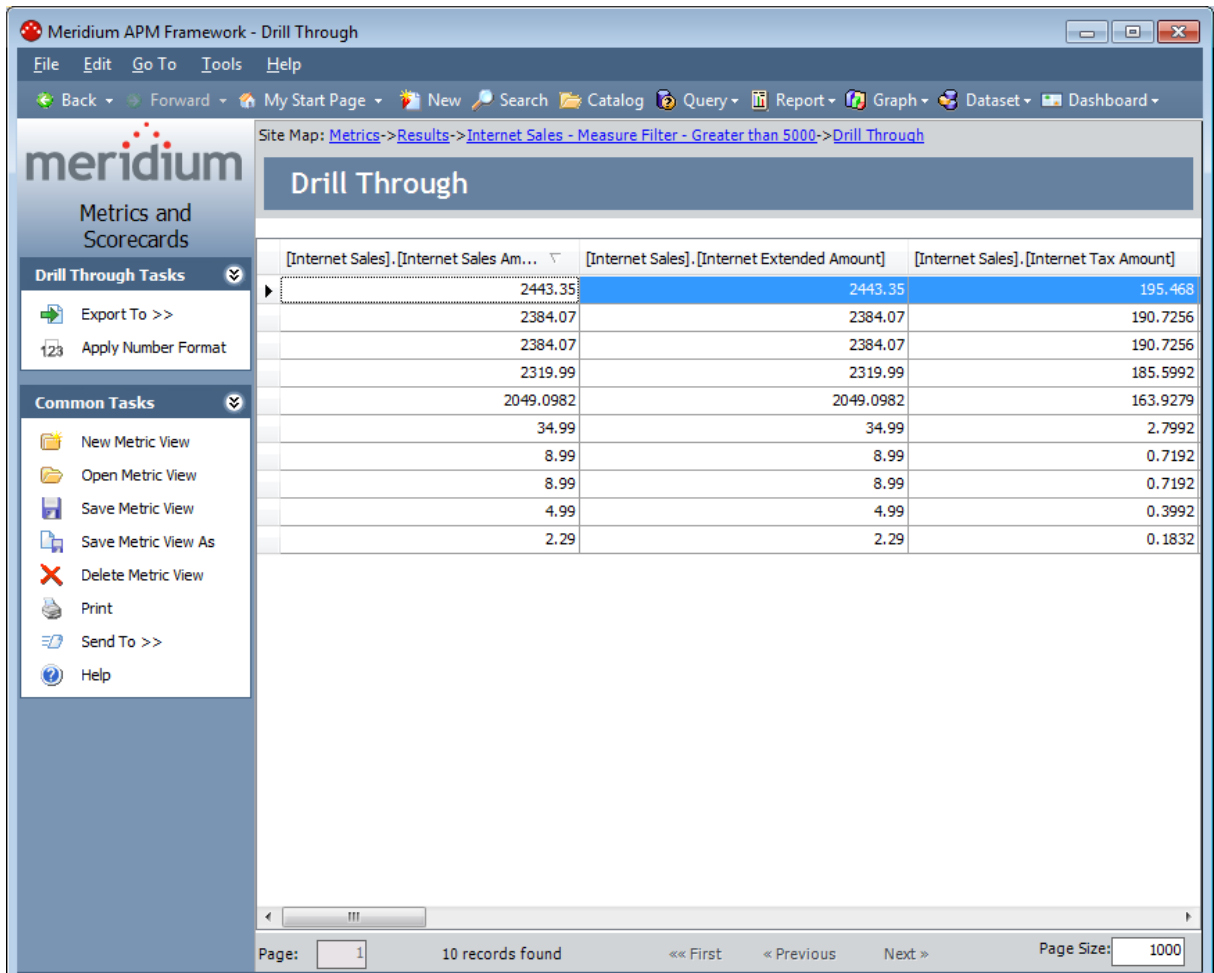
To drill through a Metric View on the Results for <Metric View> page:

- On the **Graph** tab, right-click the graph anywhere that the pointer appears as a hand, and click **Drill Through**.

-or-

On the **Table** tab, click a value in the table.

The **Drill Through** page appears, displaying the intersection data for the selected value.



Note: If you have performed a calculation on the Metric View, the **Drill Through** option is disabled. The Drill Through operation cannot be performed on a calculated measure.

From the **Drill Through** window you can:

- [Access the record associated with any row](#) if the cube has been configured properly.
- [Export the results](#) as a Microsoft Excel file, a text file, or an XML file.
- [Print the results](#).

Aspects of the Drill Through Page

The main display area of the **Drill Through** page contains a grid that displays the drill-through results. By default, 1000 records are displayed per page. You can filter each column by right-clicking the column header and selecting the desired filter from the list. You can sort each column by clicking the column header, and you can adjust the column width by clicking the column divider and sliding it to the right or left.

The screenshot shows the Meridium APM Framework - Drill Through page. The main area displays a data grid with the following columns: [Internet Sales].[Internet Sales Am...], [Internet Sales].[Internet Extended Amount], and [Internet Sales].[Internet Tax Amount]. The grid contains 10 records. The first record is highlighted in blue.

[Internet Sales].[Internet Sales Am...]	[Internet Sales].[Internet Extended Amount]	[Internet Sales].[Internet Tax Amount]
2443.35	2443.35	195.468
2384.07	2384.07	190.7256
2384.07	2384.07	190.7256
2319.99	2319.99	185.5992
2049.0982	2049.0982	163.9279
34.99	34.99	2.7992
8.99	8.99	0.7192
8.99	8.99	0.7192
4.99	4.99	0.3992
2.29	2.29	0.1832

Below the grid, the following information and options are available:

Page: 1 10 records found << First < Previous Next > Page Size: 1000

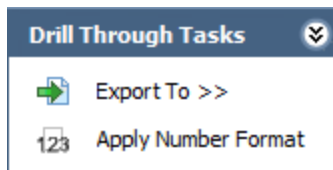
Below the grid, the following information and options are available:

- **Page X of X:** Displays the current page number in the results and the total number of pages in the Drill Through results.
- **X records found:** Displays the total number of records in the Drill Through results.
- **First link:** Displays the first page in the Drill Through results. This link is enabled when you are viewing any page other than the first page.
- **Previous link:** Displays the previous page in the Drill Through results. This link is enabled when you are viewing any page other than the first page.

- **Next link:** Displays the next page in the Drill Through results. This link is disabled only when you are viewing the last page in the Drill Through results.
- **Last link:** Displays the last page in the Drill Through results. This link is enabled when you are viewing any page other than the last page.
- **Page Size test box:** Displays the number of rows of Drill Through data that is currently displayed per page. You can change the page size by deleting the current value in the **Page Size** text box, typing the desired value, and then pressing the Enter key.

The **Drill Through** page contains two task menus, which you can use to perform tasks related to the drill-through results: [Drill Through Tasks](#) and [Common Tasks](#).

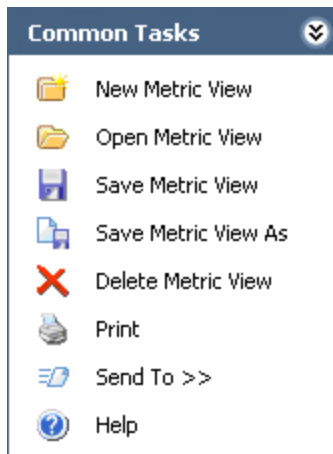
Drill Through Tasks Menu



The **Drill Through Tasks** menu on the **Drill Through** page contains the following link:

- **Export To:** Displays the **Export Drill Through Results** dialog box, which lets you [export the drill-through results to a Microsoft Excel, Text, or XML file](#).
- **Apply Number Format:** Displays the **Drill Through Result Number Format** dialog box, which you can use to [define the format for numeric values on the Drill Through page](#).

Common Tasks Menu



The **Common Tasks** menu on the **Drill Through** page contains the following links:

- **New Metric View:** Displays the **Metric View Builder**, which you can use to create a new Metric View.
- **Open Metric View:** Displays the **Open Metric View** dialog box, where you can open an existing Metric View.
- **Save Metric View:** Saves any changes that you have made to the Metric View for which you are viewing drill-through results.
- **Save Metric View As:** Displays the **Save As** dialog box, where you can save the Metric View to a new Catalog location in the Catalog or with a different name.
- **Delete Metric View:** After asking for confirmation, deletes the Metric View for which you are viewing drill-through results.
- **Print:** Displays the **Preview** window, where you can print the Metric View.
- **Send To:** Displays a submenu with options that let you provide a link to the current page on your desktop (create shortcut), in an email message, or on a Home Page.
- **Help:** Displays the context-sensitive Help topic for the **Drill Through** page.

About Modifying the Format for Numeric Values on the Drill Through Page

On the **Drill Through** page, numeric values will be displayed using decimal notation (e.g., .18) by default. You can change the format of these values to be displayed using scientific notation (e.g., 1.8e-001) using the **Drill Through Result Number Format** dialog box.

You can apply a format for:

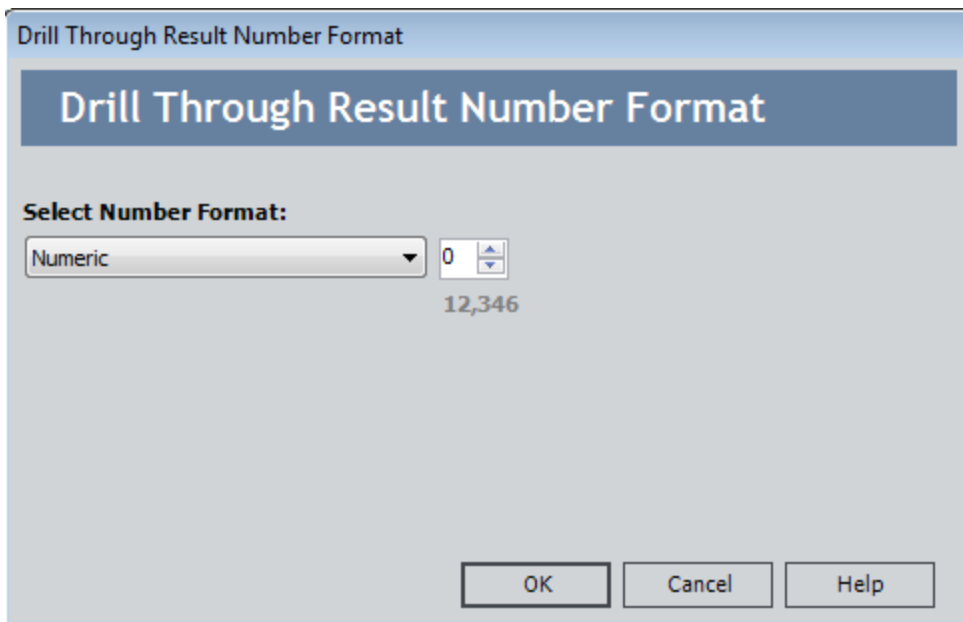
- [All numeric values that are displayed on the Drill Through page.](#)
- [Numeric values that are displayed in a single column on the Drill Through page.](#)

When you use the **Drill Through Result Number Format** dialog box to specify a format for numeric values displayed on the **Drill Through** page, your selections on the dialog box are saved as a user preference.

Aspects of the Drill Through Results Number Format Dialog Box

You can use the **Drill Through Result Number Format** dialog box to specify the format for:

- [All numeric values that are displayed on the Drill Through page.](#)
- -or-
- [Numeric values that are displayed in a single column on the Drill Through page.](#)



The **Drill Through Result Number Format** dialog box contains the following items:

- **Select Number Format list:** Contains the following values:
 - **None:** This value is selected by default the first time you access the **Drill Through Result Number Format** dialog box.
 - **Scientific:** Specifies that numeric values will be displayed using scientific notation (e.g., 1.8e-001).
 - **Numeric:** Specifies that numeric values will be displayed using decimal notation (e.g., .18).

When a value is selected in this list, a box appears to the right of the list that you can use to set the number of decimal points that are displayed. The value 0 (zero) is specified in this box by default. Below the box, an example value appears that corresponds with the value specified in the box.

- **OK button:** Closes the **Drill Through Result Number Format** dialog box and updates the format of the numeric values that are displayed on the **Drill Through**

page according to your changes.

- **Cancel button:** Closes the **Drill Through Result Number Format** dialog box without making any changes to the format of the numeric values displayed on the **Drill Through** page.
- **Help button:** Displays the context-sensitive Help topic for the **Set Y-Axis Max Value** dialog box.

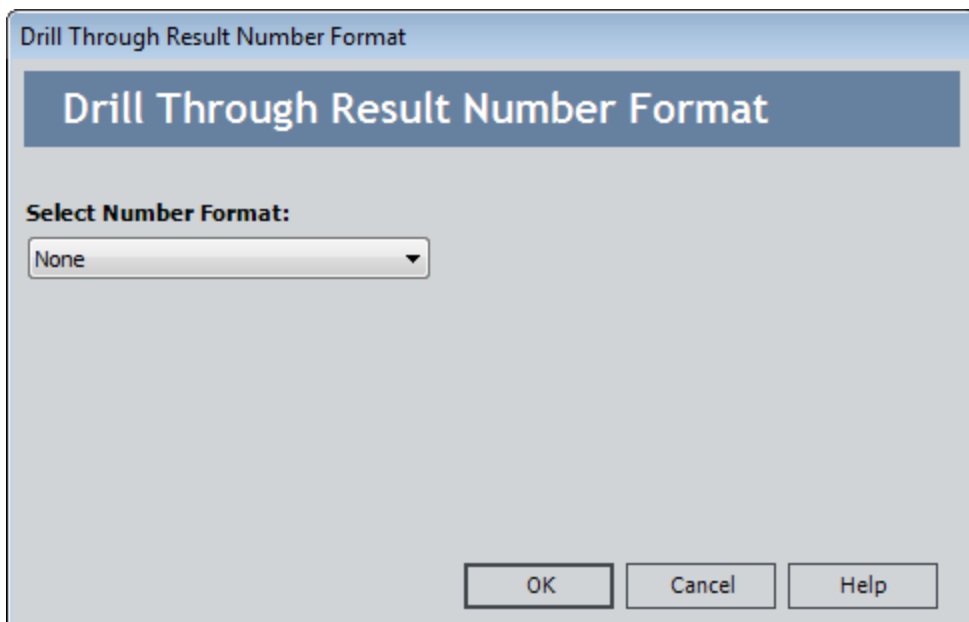
Modifying the Format For All Numeric Values Displayed on the Drill Through Page

On the **Drill Through** page, numeric values are displayed using standard decimal notation by default. You can modify the number of decimal places that are displayed for this notation *or* specify that all numeric values on the page be displayed using scientific notation via the **Drill Through Result Number Format** dialog box. You can also [modify the format for numeric values that are displayed in a single column on the Drill Through page](#).

To modify the number format for all numeric values displayed on the Drill Through page:

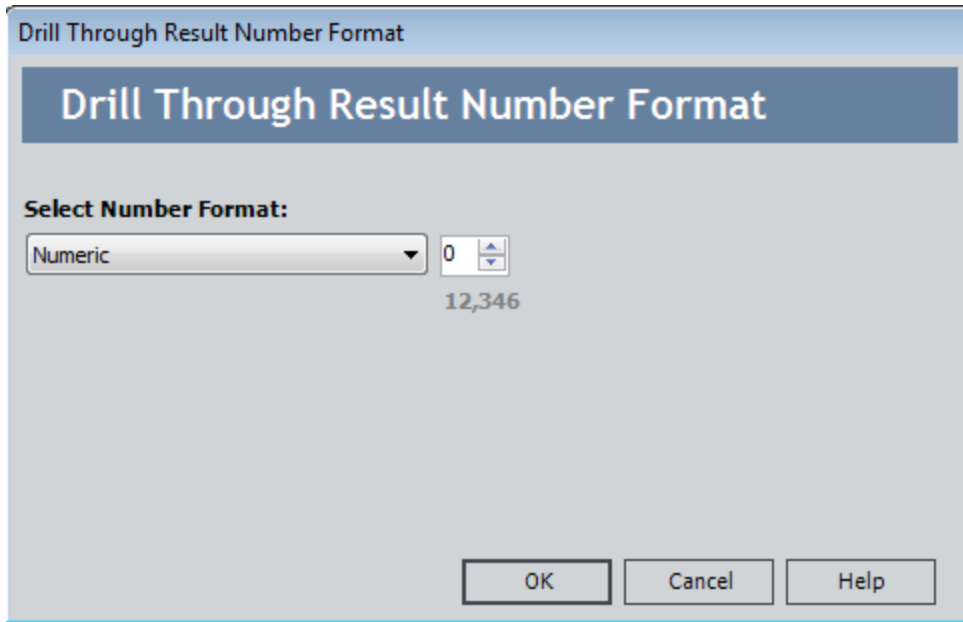
1. On the **Drill Through Tasks** menu, click the **Apply Number Format** link.


The **Drill Through Result Number Format** dialog box appears.



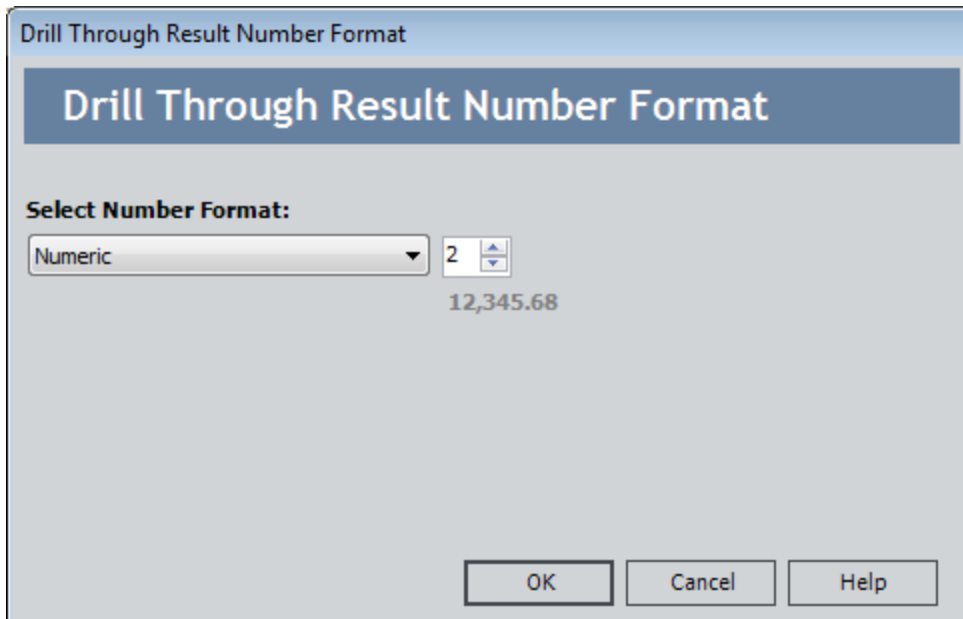
2. In the **Select Number Format** list, [select the format](#) that you want to apply to all numeric values on the page.

A box that contains the value 0 (zero) appears to the right of the **Select Number Format** list. For example, the following image shows an example of the **Drill Through Result Number Format** dialog box when *Numeric* is selected in the **Select Number Format** list.



3. In the box, use the  buttons to specify the number of decimal places that will be displayed for all numeric values on the page.

The value below the box is updated automatically to reflect the number of decimal places you selected. Continuing with the example, the following image shows what this value looks like when you have specified the value 2 in the box.



4. Click **OK**.

The **Drill Through Result Number Format** dialog box closes, the number format is applied, and the **Drill Through** page returns to focus. Continuing with the

Modifying the Format For All Numeric Values Displayed on the Drill Through Page

example, the following image shows what the **Drill Through** page looks like when you have specified a *Numeric* format (i.e., decimal notation) with 2 decimal places.

The screenshot displays the Meridium APM Framework interface. The main window title is "Meridium APM Framework - Drill Through". The breadcrumb trail is "Metrics->Results->Internet Sales - Measure Filter - Not Equal to 2.29->Drill Through". The page title is "Drill Through".

The table displays the following data:

[Internet Sales]. [Internet Sales Amount]	[Internet Sales]. [Internet Extended Amount]	[Internet Sales]. [Internet Tax Amount]
3,578.27	3,578.27	286.26
3,578.27	3,578.27	286.26
2,443.35	2,443.35	195.47
3.99	3.99	0.32
32.60	32.60	2.61
34.99	34.99	2.80
2,384.07	2,384.07	190.73
28.99	28.99	2.32
4.99	4.99	0.40
54.99	54.99	4.40
34.99	34.99	2.80
2,294.99	2,294.99	183.60
2,384.07	2,384.07	190.73
8.99	8.99	0.72
4.99	4.99	0.40

The interface includes a left sidebar with "meridium Metrics and Scorecards", "Drill Through Tasks" (Export To >>, Apply Number Format), and "Common Tasks" (New Metric View, Open Metric View, Save Metric View, Save Metric View As, Delete Metric View, Print, Send To >>, Help). The bottom status bar shows "Page: 1", "15 records found", and "Page Size: 1000".

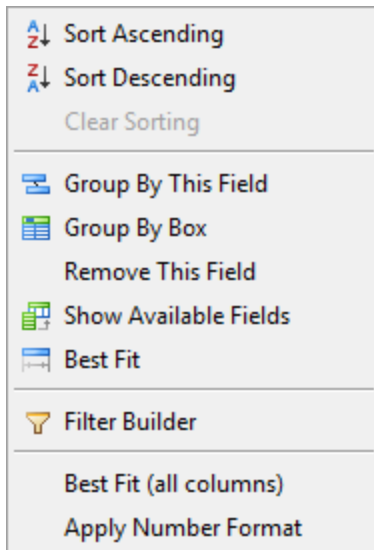
Modifying the Format For Numeric Values Displayed in a Single Column on the Drill Through Page

On the **Drill Through** page, numeric values are displayed using standard decimal notation by default. You can modify the number of decimal places that are displayed for this notation *or* specify that numeric values be displayed using scientific notation via the **Drill Through Result Number Format** dialog box. If the numeric values in one column should be displayed in a different format than the rest of the numeric values on the page, you can modify the format for the numeric values that are displayed in that column only. You can also [modify the format for all the numeric values that are on the Drill Through page](#).

To modify the number format for numeric values that are displayed in a single column on the Drill Through page:

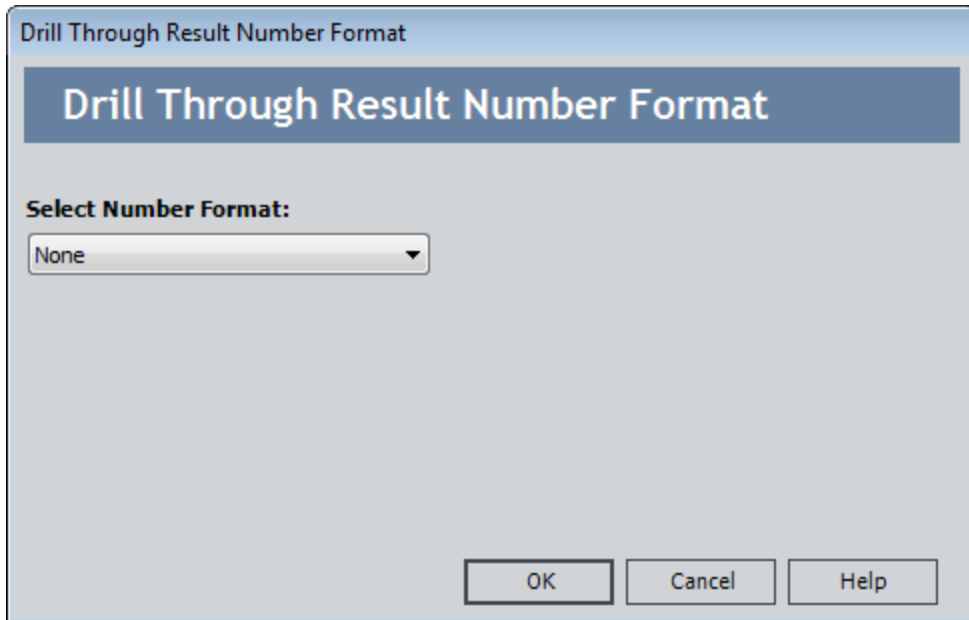
1. Right-click the name of the column that contains the numeric values for which you want to modify the format.

A submenu appears.



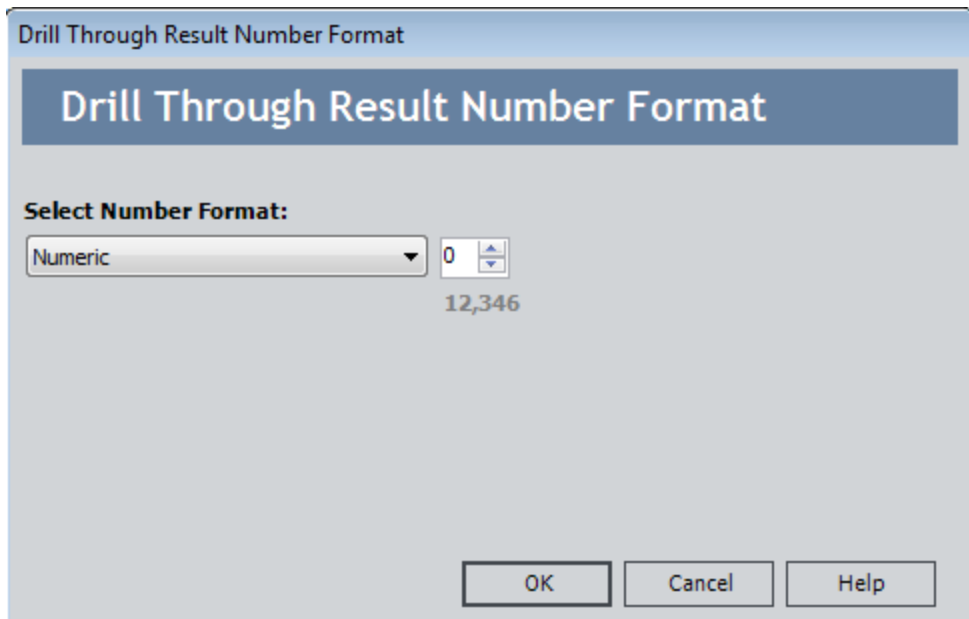
2. Click the **Apply Number Format** link.


The **Drill Through Result Number Format** dialog box appears.



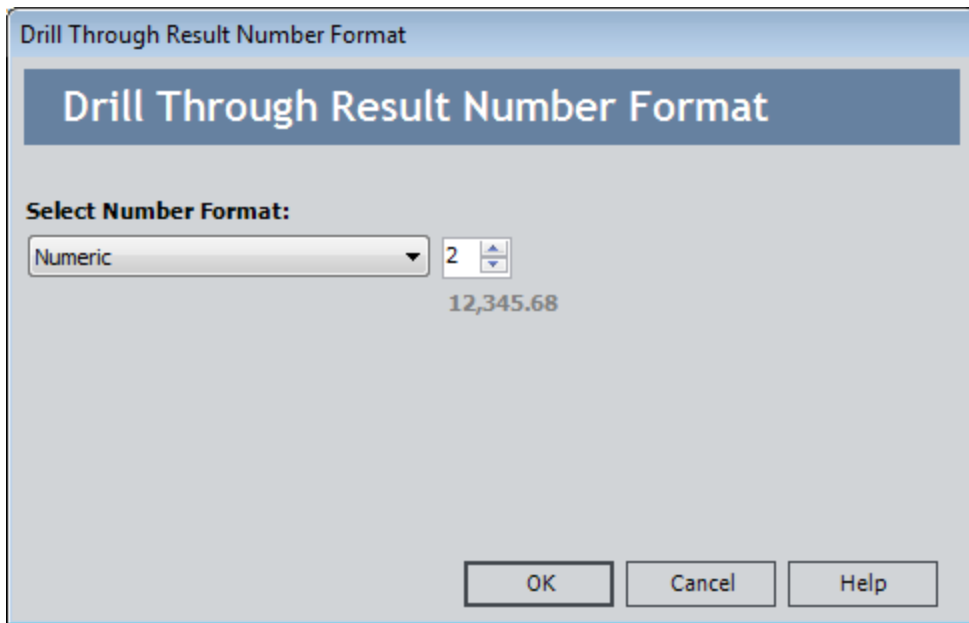
3. In the **Select Number Format** list, [select the format](#) that you want to apply to the numeric values in the column.

A box that contains the value 0 (zero) appears to the right of the **Select Number Format** list. For example, the following image shows an example of the **Drill Through Result Number Format** dialog box when *Numeric* is selected in the **Select Number Format** list.



4. In the box, use the  buttons to specify the number of decimal places that will be displayed for the numeric values in the column.

The value below the box is updated automatically to reflect the number of decimal places you selected. Continuing with the example, the following image shows what this value looks like when you have specified the value 2 in the box.



5. Click **OK**.

The **Drill Through Result Number Format** dialog box closes, the number format is applied, and the **Drill Through** page returns to focus. Continuing with the example, the following image shows what the **Drill Through** page looks like when you have specified a *Numeric* format (i.e., decimal notation) with 2 decimal places. Note that the format was applied to a single column only.

Modifying the Format For Numeric Values Displayed in a Single Column on the Drill Through Page

The screenshot shows the Meridium APM Framework interface. The main window title is "Meridium APM Framework - Drill Through". The breadcrumb trail is "Site Map: Metrics->Results->Internet Sales - Measure Filter - Not Equal to 2.29->Drill Through". The page title is "Drill Through".

The table displays data for three columns: "[Internet Sales].[Internet Sales Amount]", "[Internet Sales].[Internet Extended Amount]", and "[Internet Sales].[Internet Tax Amount]". The values are currently displayed in scientific notation (e.g., 4e+003, 3,578.27, 3e+002).

The sidebar on the left contains the Meridium logo and "Metrics and Scorecards". Under "Drill Through Tasks", there are options for "Export To >>" and "Apply Number Format". Under "Common Tasks", there are options for "New Metric View", "Open Metric View", "Save Metric View", "Save Metric View As", "Delete Metric View", "Print", "Send To >>", and "Help".

At the bottom of the window, the status bar shows "Page: 1", "15 records found", and "Page Size: 1000".

[Internet Sales].[Internet Sales Amount]	[Internet Sales].[Internet Extended Amount]	[Internet Sales].[Internet Tax Amount]
4e+003	3,578.27	3e+002
4e+003	3,578.27	3e+002
2e+003	2,443.35	2e+002
4e+000	3.99	3e-001
3e+001	32.60	3e+000
3e+001	34.99	3e+000
2e+003	2,384.07	2e+002
3e+001	28.99	2e+000
5e+000	4.99	4e-001
5e+001	54.99	4e+000
3e+001	34.99	3e+000
2e+003	2,294.99	2e+002
2e+003	2,384.07	2e+002
9e+000	8.99	7e-001
5e+000	4.99	4e-001

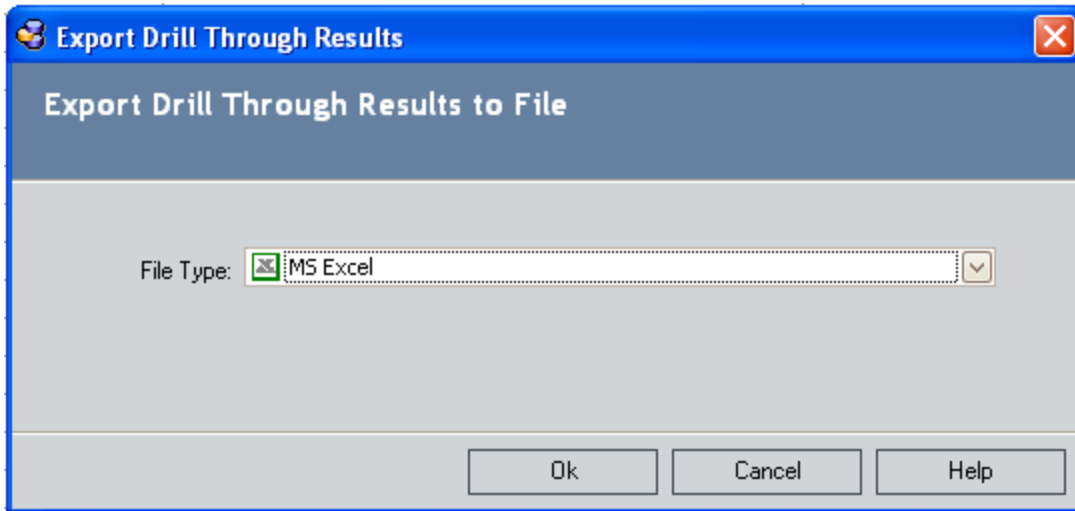
Exporting the Drill Through Results

From the **Drill Through** page, you can export the results that are displayed in the grid to a Microsoft Excel file, a text file, or an XML file. The following instructions provide details on performing the export operation.

To export the result displayed on the Drill Through page to a file:

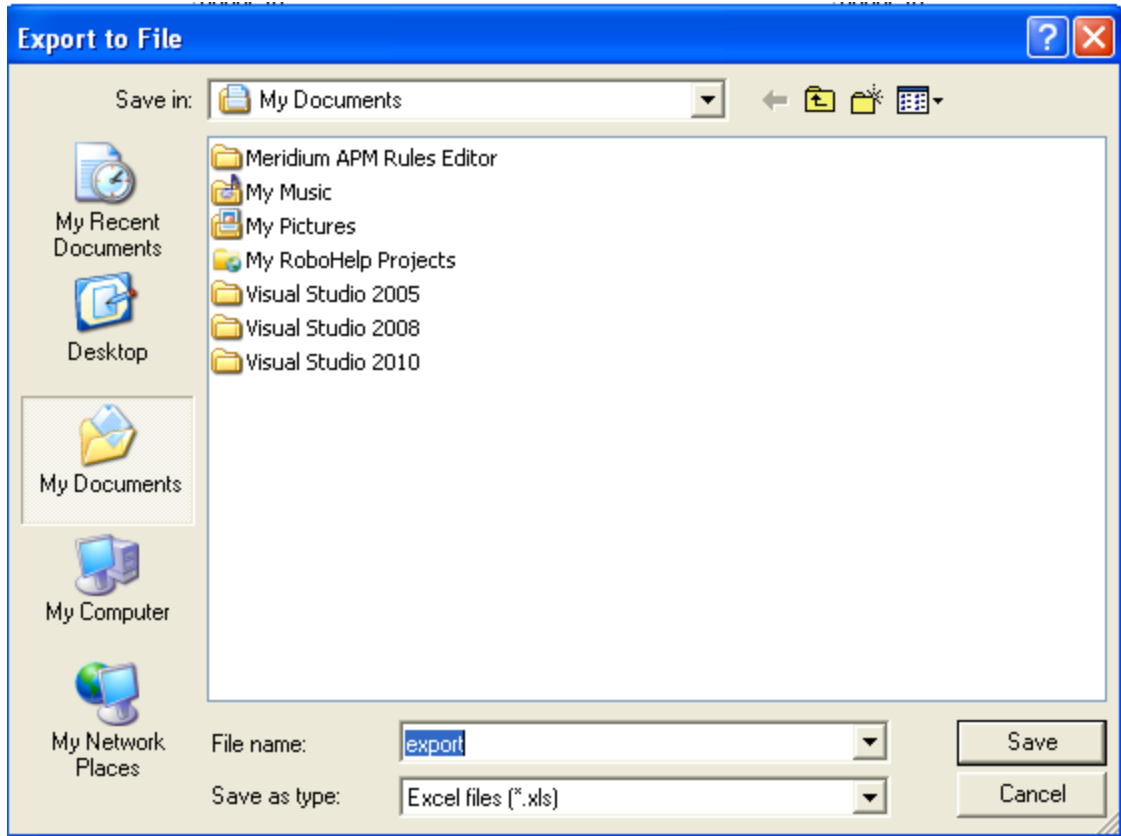
1. [On the Drill Through page](#), on the **Drill Through Tasks** menu, click the **Export** link.

The **Export Drill Through Results** dialog box appears.



2. In the **File Type** list, choose the type of file that you want to create. You can select **MS Excel**, **Text**, or **XML**.
3. Click the **OK** button.

The **Export to File** dialog box appears.



4. Navigate to where you want to save the file.
5. In the **File name** text box, type a name for the file that will be created.


Note: The selection in the **Save as type** list corresponds to the file type that you selected on the **Export Drill Through Results** dialog box. You cannot change this selection. If you want to create a different type of file, click **Cancel**, and start over.

6. Click the **Save** button.
The file is created in the location that you specified.

Printing the Drill Through Data

From the **Drill Through** page, you can print the results that are displayed in the grid. The following instructions provide details on performing this procedure.

To print the results that are displayed on the **Drill Through** page:

1. [On the Drill Through page](#), on the **Common Tasks** menu, click the **Print** link.
The **Preview** window appears.
2. Using the toolbar on the **Preview** window, customize the print options as desired.
3. Click the **Print** button. 
The **Print** dialog box appears.
4. Choose the desired options, and click **OK**.
The **Drill Through** results print to the selected printer.

Hiding and Displaying Slices

If desired, you can hide or display the descriptions of the slices that are applied to a Metric View.

The following instructions provide details on hiding or displaying slices via the **Results for <Metric View>** page. These instructions assume that you are viewing a Metric View that includes slices.

To hide or display the slices:

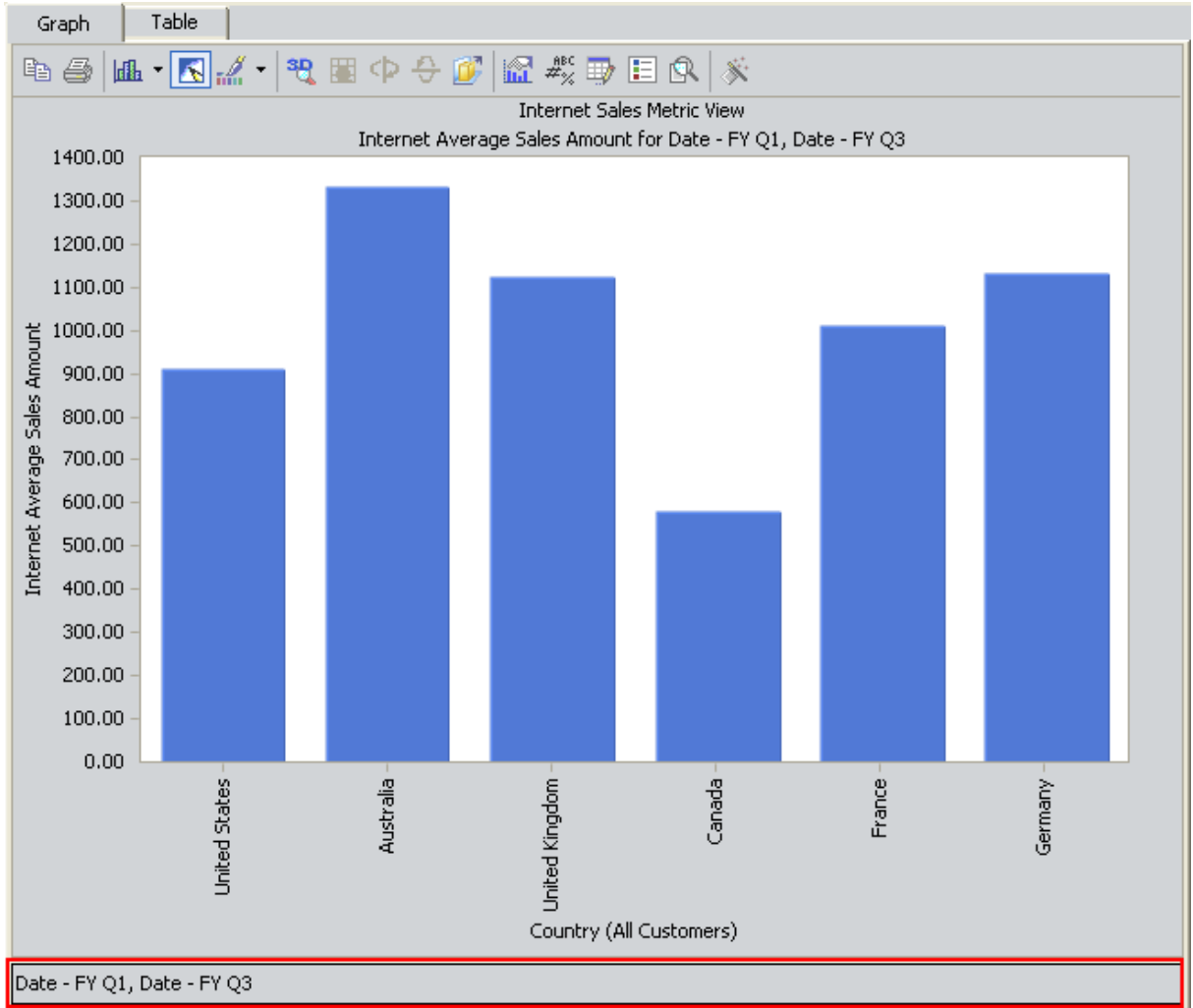
- On the **Viewer Tasks** menu, click the **Toggle Slices** link.

The slices are displayed or hidden below the Metric View as appropriate.

- If the slices are currently displayed, clicking this link will hide them.
- If the slices are currently not displayed, clicking this link will display them.

The following image shows the **Graph** tab for a Metric View, where the slices are displayed at the bottom of the page. A red outline has been added to the image to highlight the slices.

Hiding and Displaying Slices



Exporting a Metric View

On the **Results for <Metric View>** page, you can export a Metric View to a location outside the Meridium APM Framework application. You can export a Metric View in the following formats: bitmap, XML, HTML, and Microsoft Excel file.

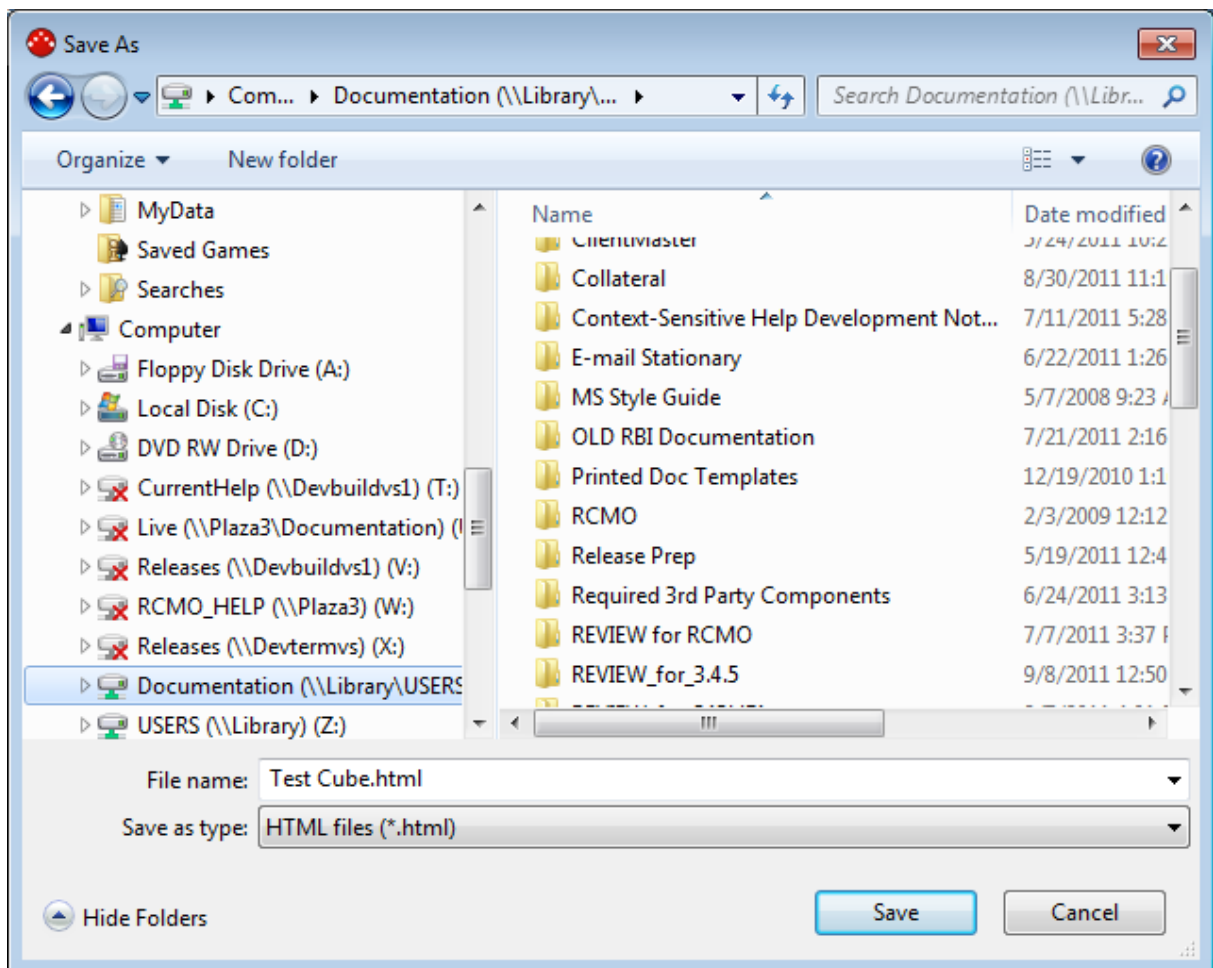
Note: You can export a Metric View to a Microsoft Excel file only when you are viewing a table. You can export a file to a bitmap only when you are viewing a graph.

To export a Metric View:

1. On the **Viewer Tasks** menu, click the **Export To** link, and select the desired format: **Bitmap, HTML, XML, or Excel**.

Note: If you choose to export a table to an Excel file and you do not have Microsoft Excel installed on your computer, you will receive an error message. This is not a fatal error.

The **Save As** dialog box appears. Note that the type of file that you selected appears in the **Save As Type** text box.



Exporting a Metric View

2. In the **Save As** dialog box, specify the name and location of the exported file.
3. Click the **Save** button.

The Metric View is exported to the specified location.

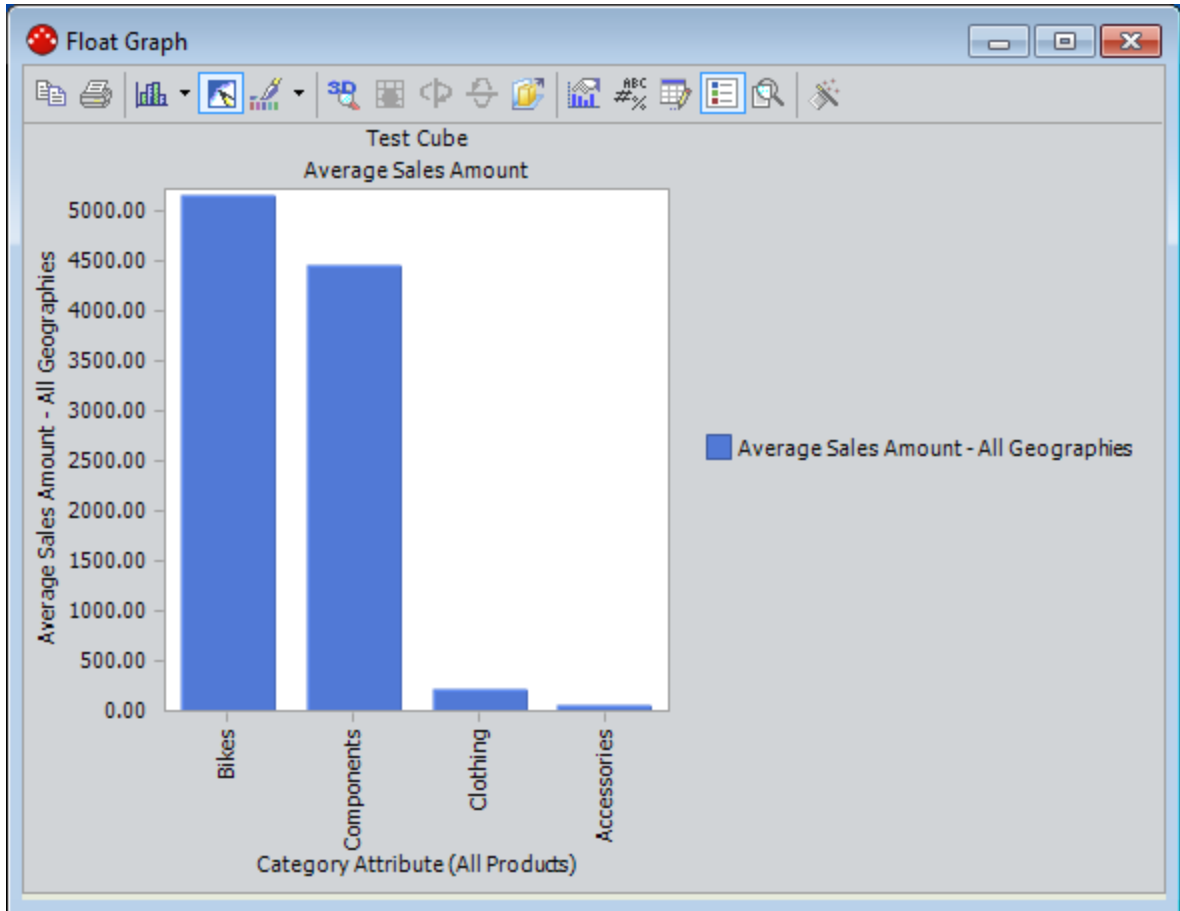
Floating the Metric View

If desired, you can open a Metric View in its own window by "floating" it. This option is available for both the **Graph** tab and the **Table** tab.

To float a graph or table:

- On the **Viewer Tasks** menu, click the **Float Table** or **Float Graph** as appropriate.

The View is opened in a separate window.



To close the separate window and return to the **Results for <Metric View>** page, click the X in the upper, right corner of the window.

About Linked Metric Views

You can associate one Metric View with another Metric View via the [Linked Views page](#).

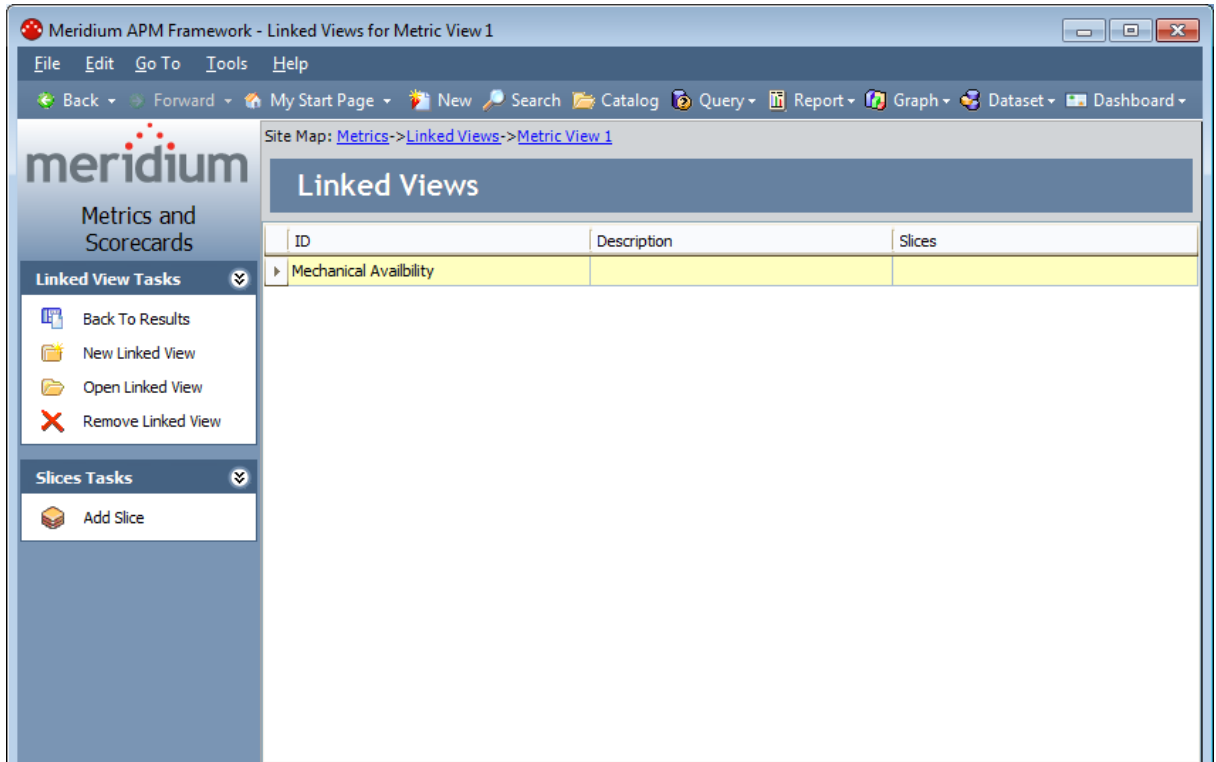
The purpose of linking two items is to create a connection or a relationship between them. Note that because Metric Views are Catalog items and not records, a link between two Metric Views is not the same as a link between two records.

Accessing the Linked Views Page

To access the Linked Views page:

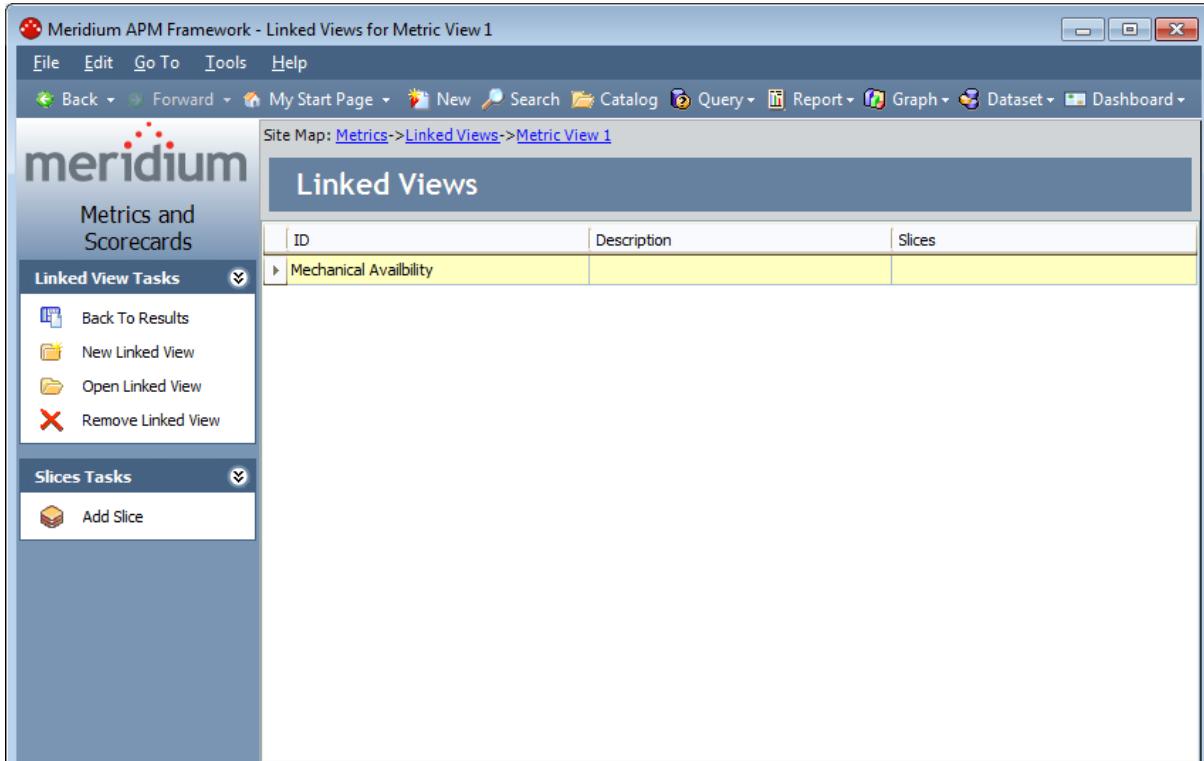
- On the **Results for <Metric View>** page, on the **Viewer Tasks** menu, click the **Linked Views** link.

The **Linked Views** page appears.



Aspects of the Linked Views Page

The **Linked Views** page displays a list of Metric Views that are associated with the current Metric View.



For each associated Metric View, the list displays the following information:

- **ID:** The name of the Metric View as defined when the Metric View was last saved.
- **Description:** A description of the Metric View as defined when the Metric View was last saved.
- **Slices:** All slices that have been added to the Metric View.

From the **Linked Views** page, you can perform the following tasks:

- [Add a Metric View to the list.](#)
- [Open a Metric View from the list.](#)
- [Remove a Metric View from the list.](#)
- [Add a slice to a Metric View in the list.](#)
- [Remove a slice from a Metric View in the list.](#)

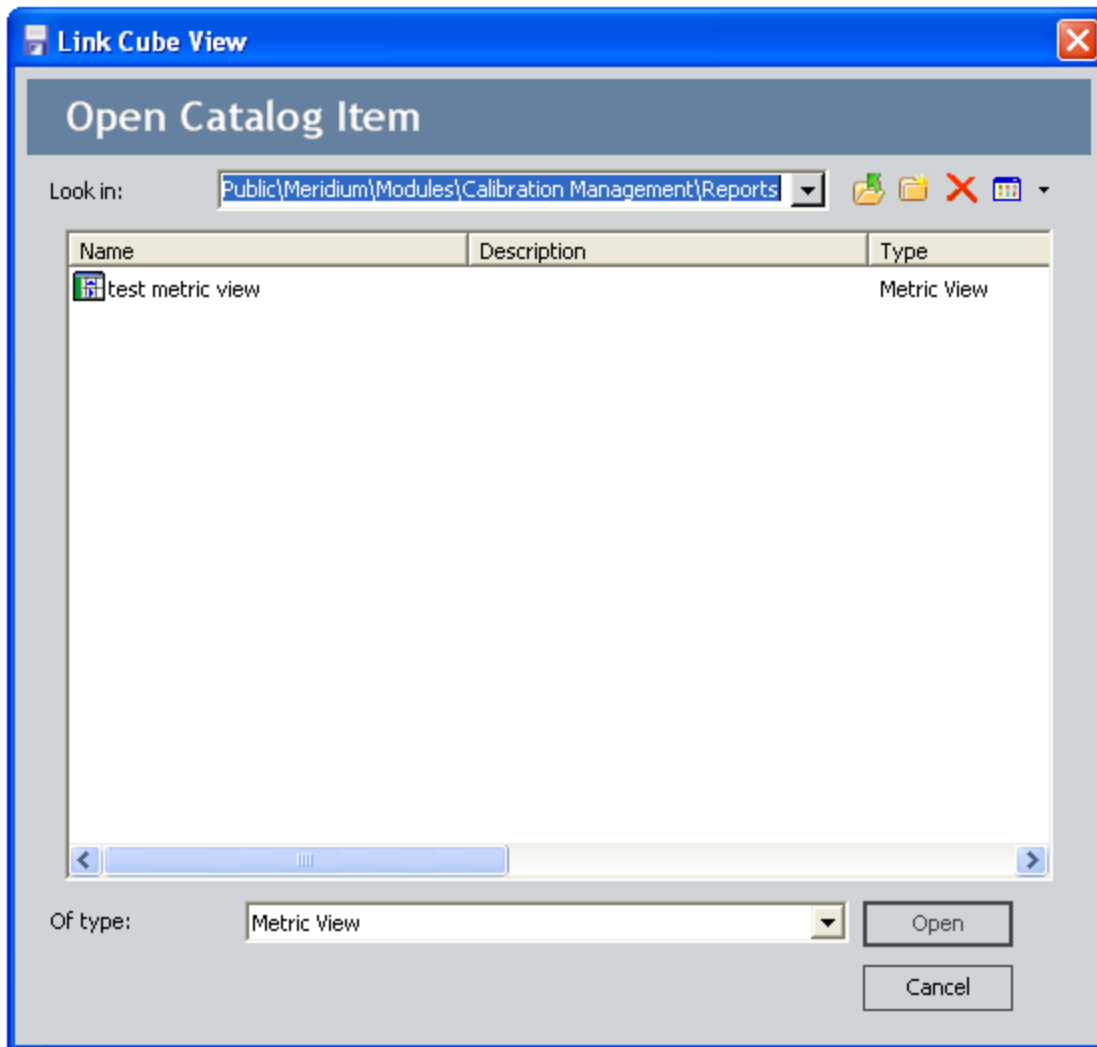
Note that any changes that you make to linked views via the **Linked Views** page will be saved automatically when you navigate away from that page.

Linking a New Metric View to the Current Metric View

To add a Metric View to the list:

1. On the **Linked View Tasks** menu, click the **New Linked View** menu.

The **Link Cube View** dialog box appears.



2. Navigate to the folder containing the Metric View you want to add to the list, select the Metric View, and click the **Open** button.

The Metric View you selected appears in the list on the **Linked Views** page. Your changes will be saved automatically when you navigate away from the **Linked Views** page.

Opening a Metric View From the List of Linked Views

To open a Metric View from the list:

1. On the **Linked Views** page, in the list of Metric Views, select the row containing the Metric View you want to open.
2. In the **Linked View Tasks** menu, click the **Open Linked View** link.

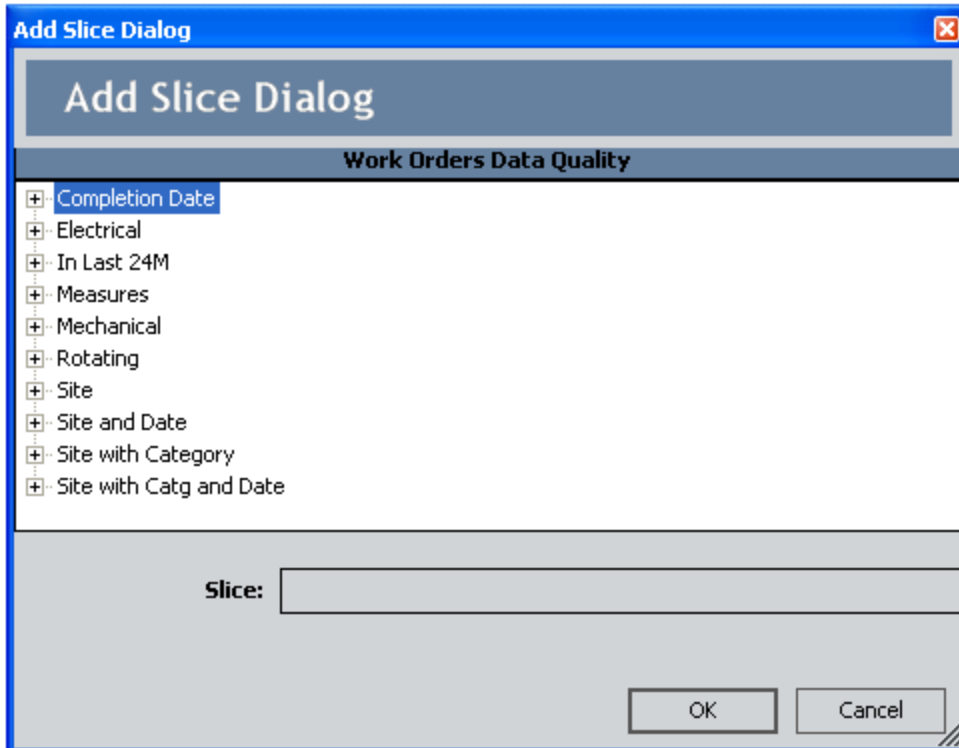
The linked Metric View appears on the **Results for <Metric View>** page.

Adding Slices to a Linked Metric View

To add a slice to a linked Metric View:

1. On the **Linked Views** page, in the list of Metric Views, select the row containing the Metric View to which you want to add a slice.
2. In the **Slices Tasks** menu, click the **Add Slice** link.

The **Add Slice Dialog** box appears.



3. Expand the tree, and select the desired slices to add the Metric View.

The selected slices appears in the **Linked Views** list in the **Slices** column for the row containing the selected Metric View.

Linked Views		
ID	Description	Slices
▶ Average Internet Sales Amount	Average Internet Sales amount for all locations	[Date],[Calendar],[Calendar Year],&[2005]

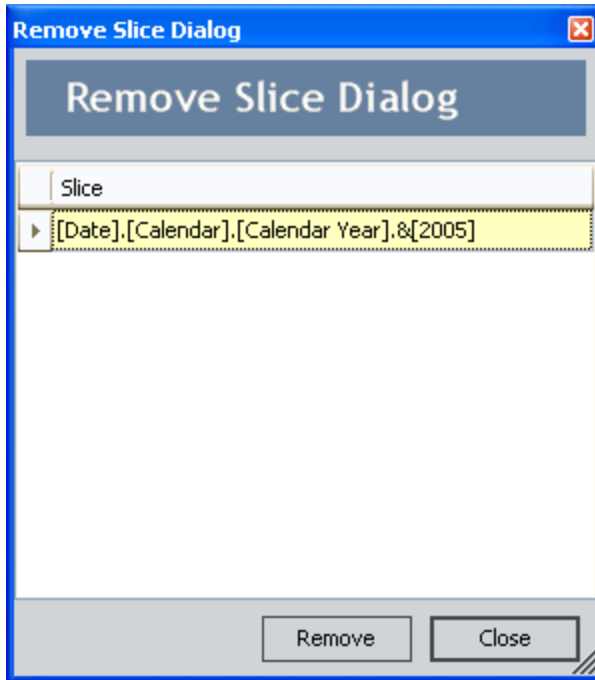
Your changes will be saved automatically when you navigate away from the **Linked Views** page.

Removing a Slice from a Linked Metric View

To remove a slice from a linked Metric View:

1. On the **Linked Views** page, in the list of Metric Views, select the row containing the Metric View from which you want to remove a slice.
2. In the **Slices Tasks** menu, click the **Remove Slice** link.

The **Remove Slice Dialog** box appears.



3. Select the row containing the slice you want to remove from the Metric View, and click the **Remove** button.

A confirmation message appears, asking if you are sure you want to remove the selected slice from the Metric View.

4. Click **OK**.
5. Click the **Close** button on the **Remove Slice Dialog** box.

On the **Linked Views** page, in the **slices** column, note that the slice you removed no longer appears.

Linked Views		
ID	Description	Slices
▶ Average Internet Sales Amount	Average Internet Sales amount for all locations	

Your changes will be saved automatically when you navigate away from the **Linked Views** page.

Removing a Linked Metric View

To remove a linked Metric View:

1. On the **Linked Views** page, in the list of Metric Views, select the row that contains the linked Metric View that you want to remove.
2. On the **Linked View Tasks** menu, click the **Remove Linked View** link.
A confirmation message appears, asking if you are sure you want to remove the Metric View from the list.
3. Click **OK**.

The selected Metric View is removed from the list. Your changes will be saved automatically when you navigate away from the **Linked Views** page.

About Including Actions in Metric Views

If desired, you can configure SQL Server Analysis Services cubes to contain *Actions*, which can provide users with access to extended data and information. When a user right-clicks the *Target* in the Metric View that has been built upon a cube that contains Actions, those Actions will appear on the shortcut menu. When a user clicks an Action, the [Action will be invoked](#), and the target data will appear. If desired, you can configure multiple Actions for a cube.

The available Actions and the information that is displayed is determined by how the associated cube has been configured in Analysis Services.

- Actions are attached to Targets, which correspond to member levels in a Metric View.

Note: Actions can be attached to a Target at ALL member levels, including the cube level. Additionally, if an Action has been configured on a member level, you will be able to see the Action only after you have drilled down to the associated level. For example, if an Action has been configured at the Customer A level and you right-click the graph on the All Customers level, the Action will not appear on the shortcut menu. You *will* be able to see the Action on the shortcut menu after you drill down to the Customer level and right-click the Customer A member.

- Meridium APM supports the use of any Action for which a *URL* has been defined. The URL that is defined for the Action will determine the result of the Action.

The Meridium APM documentation does not include details on configuring Actions. Rather, we limit our discussion of Actions to how they can be invoked after they have been properly configured. For more information on defining Actions within Analysis Services cubes, refer to the SQL Server documentation.

Invoking Actions

Actions that have been defined in Analysis Services cubes will be available in Meridium APM Metrics and Scorecards within the Metric Views that have been built upon those cubes. When you click the Action, the Meridium APM system will launch the URL behind that Action.

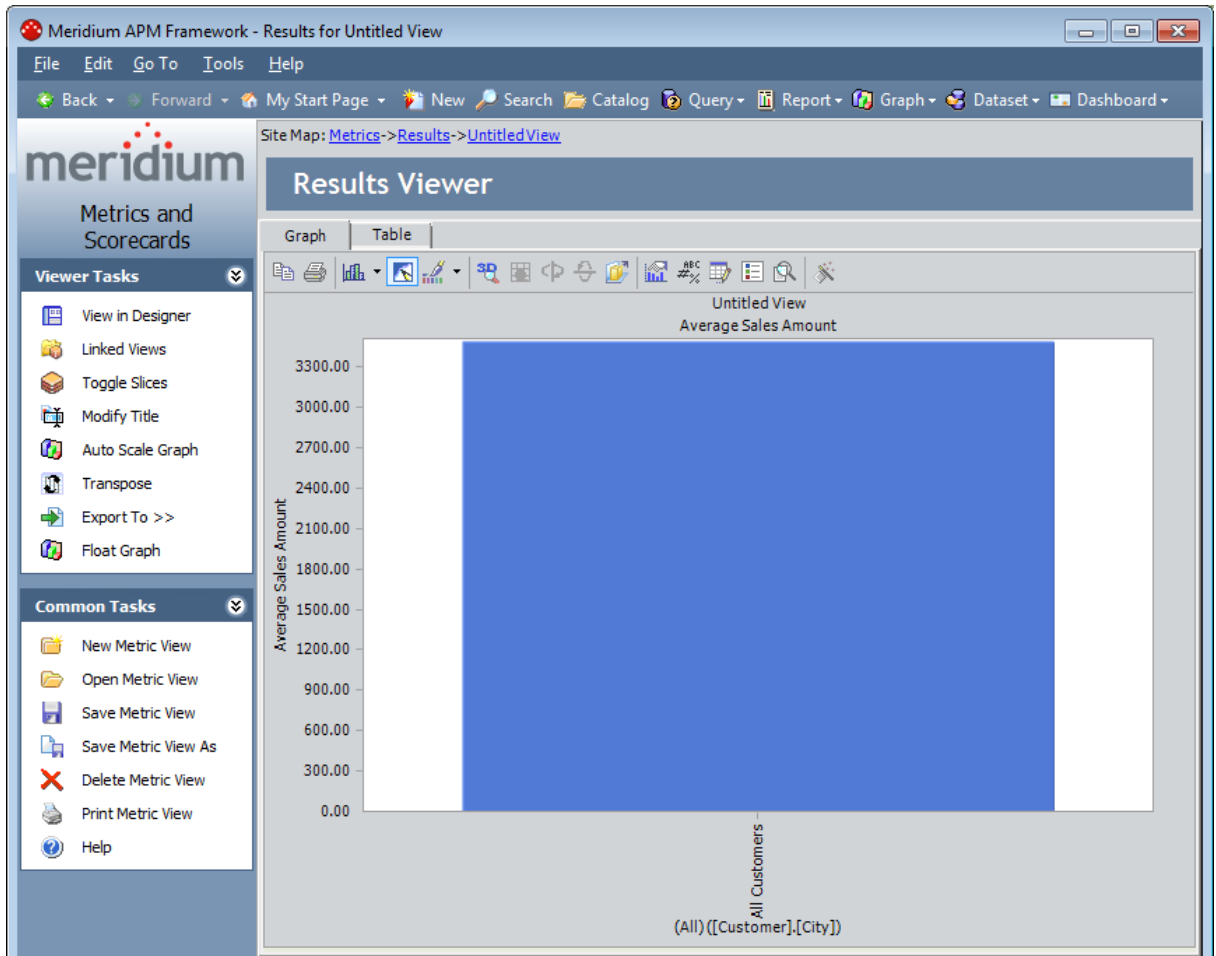
- If the URL is a Meridium APM URL, the target will open within the Meridium APM Framework Application. For example, an Action can be configured to open a record in the Record manager. When you click the Action, the **Record Manager** page will appear, displaying the record specified in the URL.
- If the URL specifies a target that is external to Meridium APM, the appropriate application will be opened.

For example, Actions could be configured to display your customers' website on each customer level member.

To invoke an Action that has been defined within an Analysis Services cube:

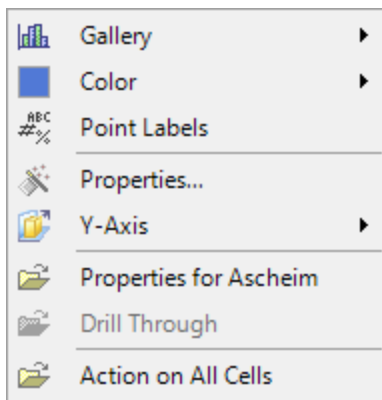
1. Open the Metric View that is built up on the cube for which the Action has been defined.

The Metric View appears on the **Results for <Metric View>** page.



2. On the **Results for <Metric View>** page, on the **Graph** tab, right-click the Target in the graph.

The submenu appears, displaying the standard graph tools and all the Actions that have been defined for that cube.



3. Click the Action that you want to open.

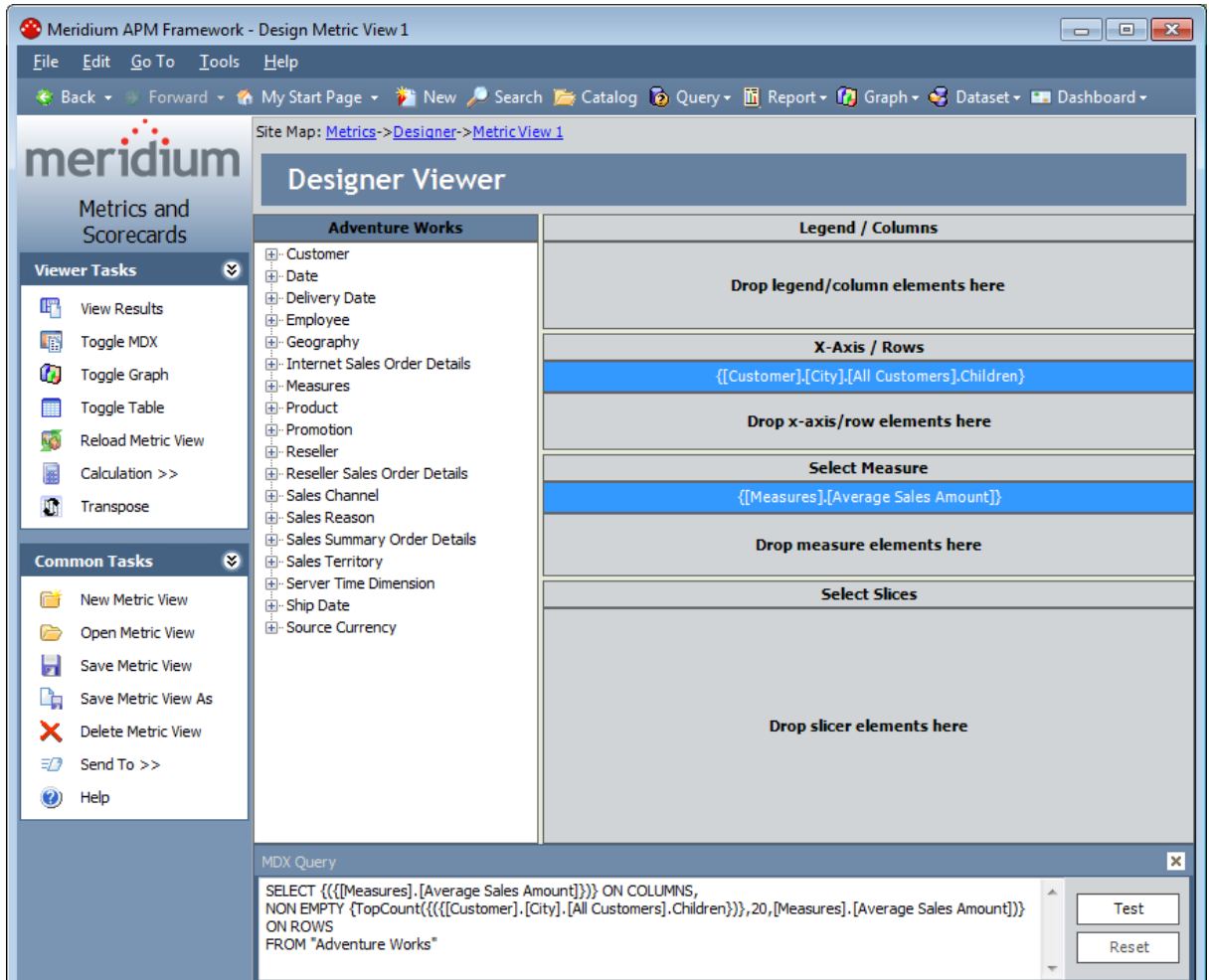
The URL is invoked, and the results appear as specified in the URL.

Accessing the Design Page

To access the Design page:

- On the Results for <Metric View> page, on the **Viewer Tasks** menu, click the **View in Designer** link.

The [Design page](#) appears.



Aspects of the Design Page

The **Design** page allows you to modify a Metric View by adding or removing slices and changing the x-axis, column, and measure values. The following image shows the **Design** page. Labels have been added to the image to call out the sections on this page.

The image shows the 'Designer Viewer' interface for the 'Adventure Works' cube. It is divided into three main sections:

- A:** The Designer Tree, which lists dimensions available for the cube: Customer, Date, Delivery Date, Employee, Geography, Internet Sales Order Details, Measures, Product, Promotion, Reseller, Reseller Sales Order Details, Sales Channel, Sales Reason, Sales Summary Order Details, Sales Territory, Ship Date, and Source Currency.
- B:** The Designer Workspace, which displays the currently selected elements for the Metric View. It is divided into four sections:
 - Legend / Columns:** Drop legend/column elements here.
 - X-Axis / Rows:** Contains the selected dimension: {[Customer].[City].[All Customers].Children}.
 - Select Measure:** Drop measure elements here. Contains the selected measure: {[Measures].[Customer Count]}.
 - Select Slices:** Drop slicer elements here.
- C:** The MDX Query window, which displays the generated MDX query:


```
SELECT {[Measures].[Customer Count]} ON COLUMNS,
NON EMPTY {TopCount({{[Customer].[City].[All Customers].Children}};20,[Measures].[Customer Count])}
ON ROWS
FROM "Adventure Works"
```


The **Design** page consists of the following sections, which are labeled according to the call outs shown in the preceding image:

- **A:** The designer tree, which contains the list of dimensions that are available for the cube from which the Metric View was created. The name of the cube is displayed in the label above the tree. You can use this tree to add elements to the Metric View.
- **B:** The designer workspace, which displays the elements that are currently selected for the columns, rows, measures, and slices in the Metric View. The designer

workspace contains the following areas, which display the elements that are currently selected from the designer tree:

- **Legend/Columns:** Displays the element that is currently selected for the legend values in the graph and the column values in the table.
- **X-Axis/Rows:** Displays the element that is currently selected for the x-axis values in the graph and the row values in the table.
- **Select Measure:** Displays the element that is currently selected for the measure values in the graph and the table.
- **Select Slices:** Displays the element that is currently selected for the slice values in the graph and the table.

When you add an element to the designer workspace, the MDX query syntax that defines that element is displayed below the area label. In these expressions, the first level of the dimension appears first, followed by the drill-down path or hierarchy in that dimension.

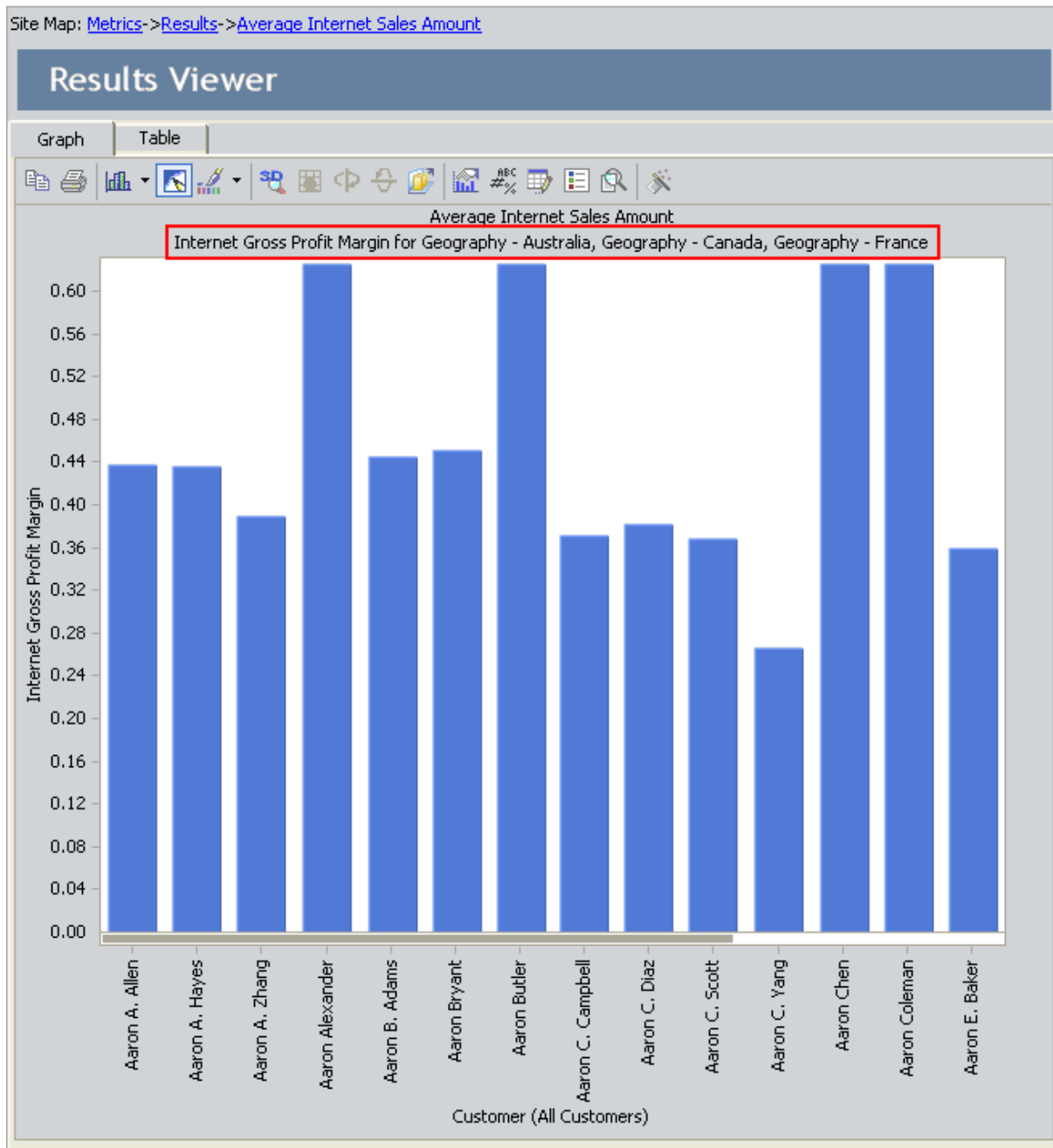
- **C:** The **MDX Query** pane, which contains the MDX Query syntax that defines the Metric View. This section is displayed by default. You can, however, hide this section by clicking the  in the top right corner of the pane.

Adding Slices to a Metric View

On the **Design** page, you can add [slices](#) to a Metric View. A slice restricts the data that is shown in a Metric View. After you add a slice to a Metric View:

- The data shown in the Metric View will change to reflect the selected slice(s).
- A description of the slice(s) will appear below the title of the graph.

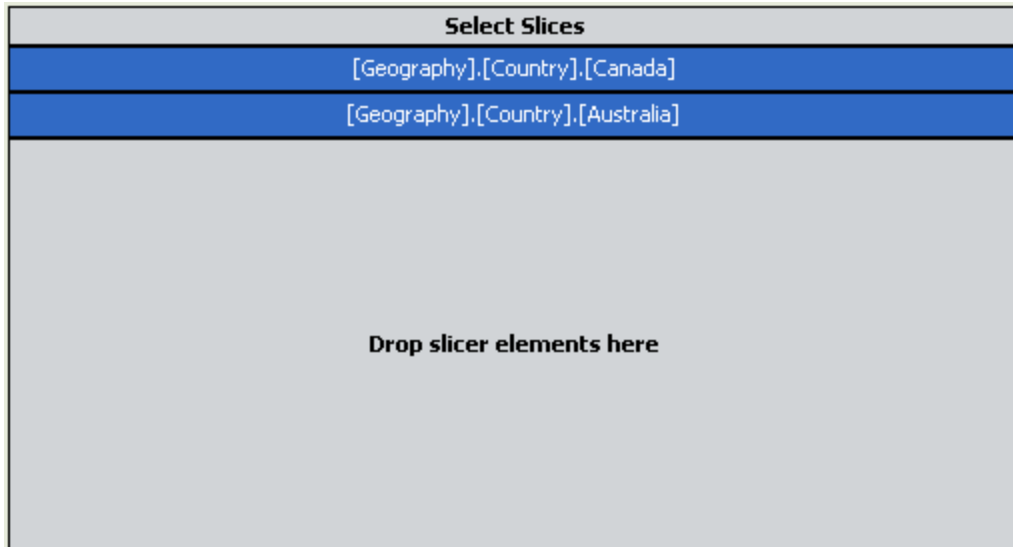
The following image shows an example of the **Graph** tab in a Metric View to which multiple slices have been added. A red outline has been added to the image to highlight the slices.



To add a slice to a Metric View:

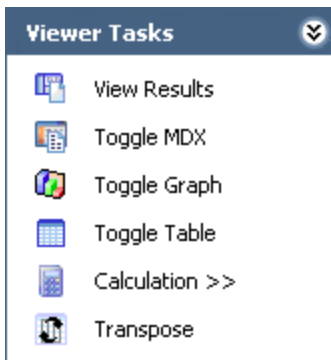
1. On the **Design Page**, in the designer tree, select the slice element that you want to add to the Metric View.
2. Drag the element from the designer tree and drop it in the **Select Slices** section in the designer workspace.

The slices element is added to the Metric View and appears in the **Select Slices** section of the designer workspace.



Additionally, if you view the Metric View graph, you can see that the data displayed in the graph has changed to reflect the slices that you selected.

Viewer Tasks Menu



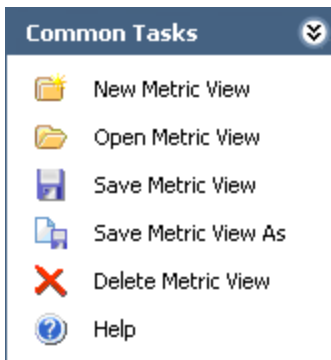
The **Viewer Tasks** menu on the **Design** page contains the following links:

- **View Results:** Displays the Metric View on the [Results for <Metric View> page](#).
- **Toggle MDX:** Displays the [MDX query](#) at the bottom of the page.
- **Toggle Graph:** Displays the graph preview in a floating window.

Note: Changes you make to the graph in the floating window will not be reflected in the graph when you access it on the **Results for <Metric View>** page.

- **Toggle Table:** Displays the table preview in a floating window.
- **Calculation:** Displays a submenu with three options: **Contribution**, **Custom**, and **Difference**. Each option displays the **Calculated Member Wizard**, which lets you design the appropriate [calculation option](#).
- **Transpose:** Switches the column members with the row members.

Common Tasks Menu



The **Common Tasks** menu on the **Design** page contains the following links:

- **New Metric View:** Displays the **Metric View Builder**, which you can use to [create a new Metric View](#).
- **Open Metric View:** Displays the **Open Metric View** dialog box, where you can [open an existing Metric View](#).
- **Save Metric View:** Lets you [save the Metric View to the Catalog](#).
- **Save Metric View As:** Displays the **Save As** dialog box, where you can save an existing Metric View to a new Catalog location or with a different name.
- **Delete Metric View:** After displaying a confirmation message, [deletes the current Metric View](#).
- **Send To:** Displays a submenu with options that let you provide a link to the **Results for <Metric View>** page on your desktop (create shortcut), in an email message, or on a Home Page. This link appears if the Metric View has been saved.

Note: The **Send To** option on the **Design** page does not create a link to the **Design** page. It creates a link to the **Results for <Metric View>** page.

- **Help:** Displays the context-sensitive Help topic for the **Design** page.

Changing the Current Selections

You can change the current selections on the **Design** page by using these options:

- To add an element to the Metric View, select the element from the left side and drag it into the area under the appropriate heading. Note that you can select any element in the designer tree and not necessarily the lowest level member in the hierarchy. You can choose a high-level member, such as "Store" or lower level such as "Store Country" or "Store State," or even the particular store number.
- To remove an element from the Metric View, right-click the selected element and choose **Remove**.
- To obtain a cross-join of multiple dimensions in rows or columns, select the element from the list on the right and drop it in a different area of the field.

Rules for Working on the Design Page

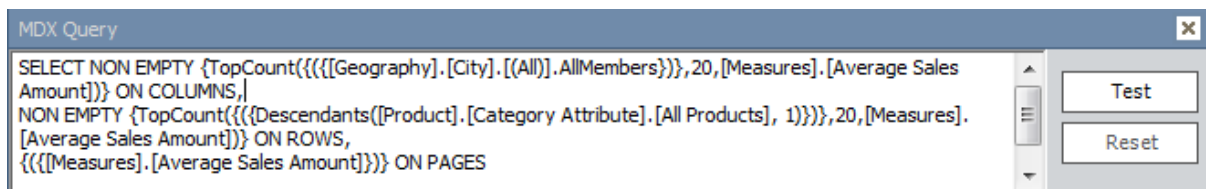
When working on the Design page, it is helpful to keep in mind the following rules:

- An element cannot be used twice in the designer workspace. For example, you cannot add the same element to the **Legend/Column** area that already appears in the **Select Measure** area.
- You can add only one member of each *dimension* as a slice. You cannot add a slice to the **Legend/Column**, **X-Axis/Rows**, or **Select Measures** areas.
- You can use the drag-and-drop method to move elements from the designer tree to the designer workspace. If you select a dimension element, all members of that dimension will be included in the area to which it is added.
- You can replace an element in the **Legend/Column** and **X-Axis/Rows** areas by dragging the element that you want and dropping it on the element that you want to replace.
- You can cross-join two dimensions or add an additional element by dragging the element that you want and dropping it into the blank space in the **Legend/Column** or **X-Axis/Rows** areas.
- If you will not be selecting Measures on rows or columns, the default measure will automatically populate. You can drag a different measure here to use one other than the default. If you are selecting Measures on rows or columns, this section will be blank.

Overview of MDX Queries

Multidimensional Expressions (MDX) is the language that Microsoft included with OLAP Services to allow access to OLAP data from client applications. MDX is used to describe multidimensional queries.

In Metrics and Scorecards, you can [examine the corresponding MDX query](#), which can handle numerous measures and dimensions. The **MDX Query** window allows you to manipulate the code on which the data is generated. It is strongly suggested that you do not use the **MDX Query** window without prior knowledge of how to manipulate MDX Query code. Note that if you open the **MDX Query** window while the **Design** page is open, the **MDX Query** window will reflect the dimensions and levels currently selected. By default, the **MDX Query** window is hidden on the **Design** page until you select to view it. When writing an MDX statement, the **View in Designer** link is disabled.



To specify a dataset, an MDX query must contain the following information:

- The number of axes.
- The members from each dimension to include on each axis of the MDX query.
- The name of the Cube that sets the context of the MDX query.
- The members from a slicer dimension on which data is sliced for members from axis dimensions.

The general syntax of an MDX statement is:

```
SELECT [<axis_specification>
```

```
[, <axis_specification>...]
```

```
FROM [<Cube_specification>]
```

```
WHERE [<slicer_specification>]]
```

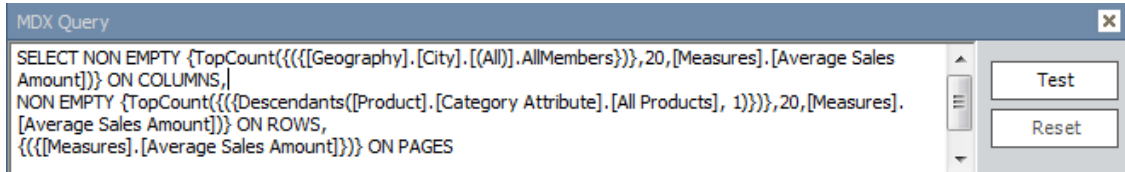
In MDX, the SELECT statement is used to specify a dataset containing a subset of multidimensional data. The SELECT clause determines the axis dimensions of an MDX SELECT statement. The FROM clause determines which Cube is to be used when extracting data to populate the result set of the MDX SELECT statement. The optional WHERE clause determines which dimension or member to use as a slicer dimension; this restricts the results to a specific dimension or member.

Accessing the MDX Query Window

To access the MDX Query Page:

1. On the **Design** page, click the **Toggle MDX** link on the **Viewer Tasks** menu.

The **MDX Query** display area appears at the bottom of the screen.



Hint: You can drag and dock the MDX query window to any other location on the screen.

2. If desired, make changes to the query, if desired, and test your changes by clicking the **Test** button or reset your changes by clicking the **Reset** button.
3. Any changes that you make will be saved when you save the Metric View.

Types of Calculations

On the **Design** page, you can make three types of calculations on existing Metric Views. Based on your selections, the expression will then become an additional column or row in the Metric View. After adding the expression to the **Metric View Builder**, it will be listed as a column, row, measure, or slice, based on your preferences.

The following calculation types are available on the **Design** page.

- **Contribution:** A calculation that determines the contribution per portion for different factors. For example, you can calculate the percentages from different categories from total cost, such as maintenance, repair, and lost opportunity.

When using a contribution calculation, you can choose to evaluate the improvement opportunity for a particular family in comparison to all other families. An "improvement opportunity cost" means the potential for saving money if a particular factor is properly evaluated to prevent failures and downtime.

- **Custom:** A calculation that lets you specify a query based on a more sophisticated calculation than the difference or contribution. As a result, customized calculations are generally the most difficult ones to create.
- **Difference:** A calculation that involves the subtraction of one member from another to compute a value. A value expression can be used to evaluate overall repair cost and the costs within a site.

The difference in a repair cost can be compared between all repairs for a site and then all repairs for a particular piece of equipment. For this type of calculation, you would type in the [Measures] dimension and then the measure Cube, [Site Repair]. Note that when calculating the difference in a repair cost column, drilling down the hierarchy will automatically calculate the difference.

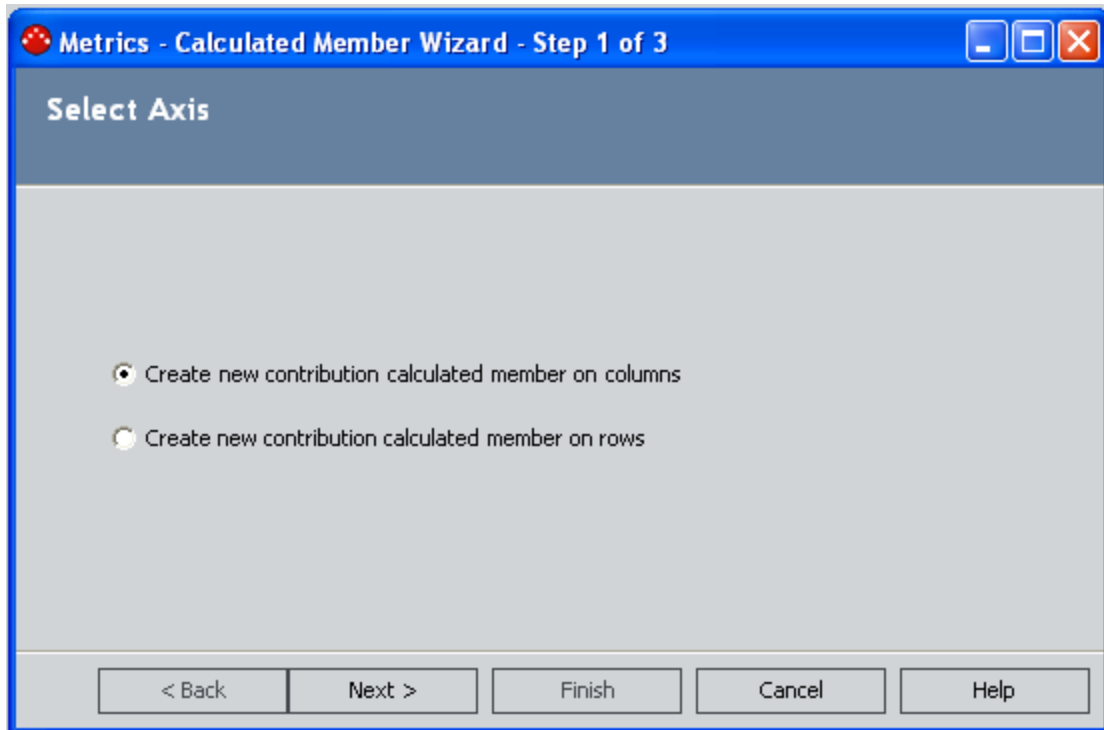
Select the calculation that best suits your needs. Note that the contribution and difference calculations involve a user interface, while the custom calculation requires you to write an MDX query without assistance.

Making Contribution Calculations

To make a contribution calculation:

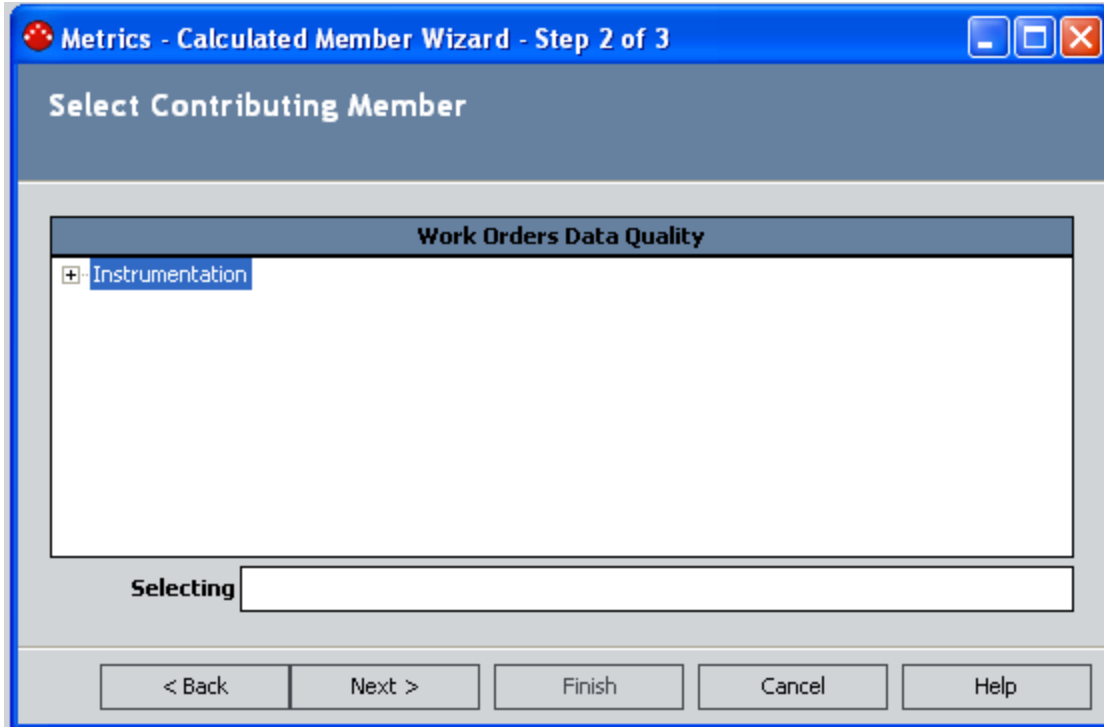
1. On the [Viewer Tasks menu](#), click the **Calculation** link, and then click **Contribution**.

The **Metrics - Calculated Member Wizard** appears, displaying the **Select Axis** screen.



2. Select the option that corresponds to your creation preference:
 - Select the first option to create a calculation on columns
 - Select the second option to create a calculation on rows.
3. Click the **Next** button.

The **Select Contributing Member** screen appears.



4. In the list of members in the Metric View, select the first member for the calculation. Note that you cannot create a contribution if a cross-join exists on the opposite axis of the column or row.
5. Click the **Next** button.
The **Specify Name** screen appears.

Metrics - Calculated Member Wizard - Step 3 of 3

Specify Name

Name: Untitled

Unique Name: [Instrumentation],[Untitled]

Type: Contribution

Axis: Column

Expression: IIF([In Last 12M].CurrentMember.Level.Ordinal=0, 100,

< Back Next > Finish Cancel Help

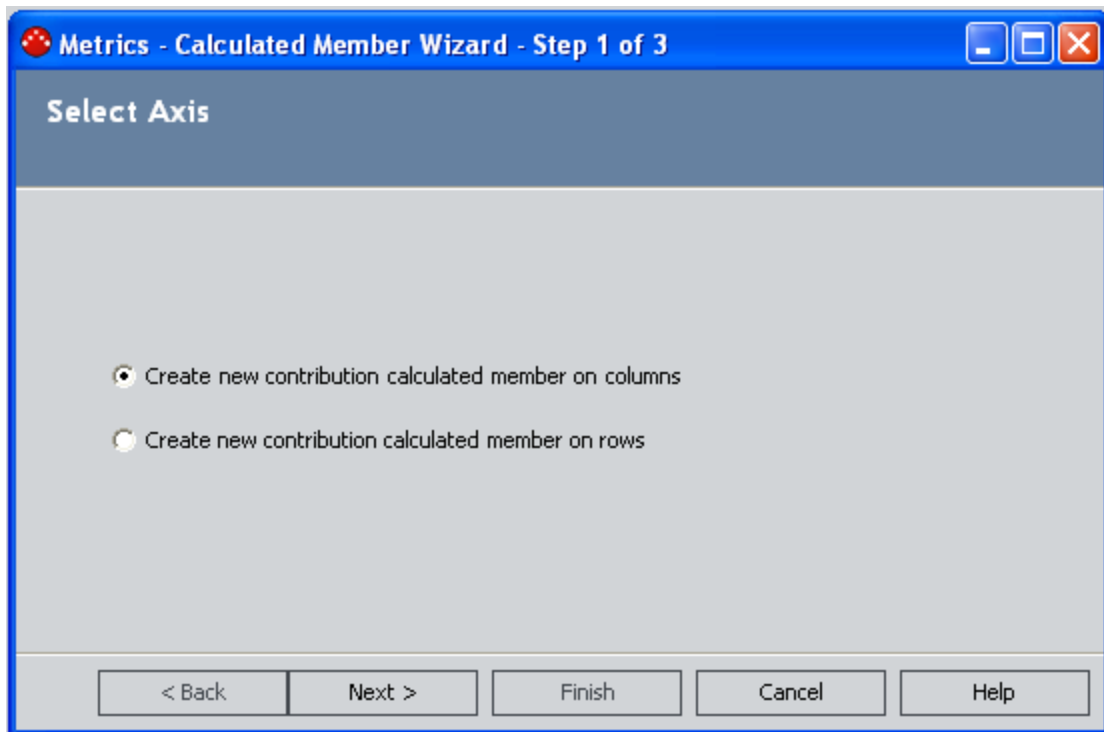
6. Type a name in the **Calculated Member Name** field. There is no character limit to the name.
7. Click the **Finish** button to complete the builder.
The new calculated member is added to the Metric View.

Calculating Difference

To calculate difference:

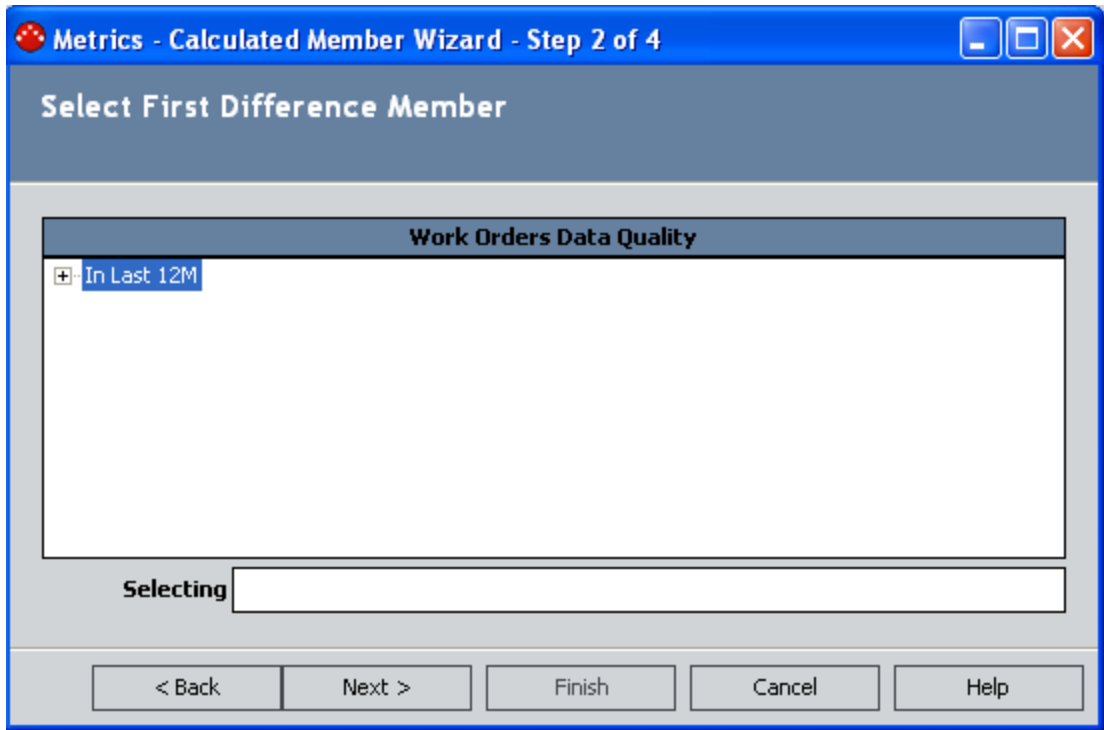
1. On the [Viewer Tasks menu](#), click the **Calculation** link, and select **Difference** from the menu.

The **Metrics - Calculated Member Wizard** appears, displaying the **Select Axis** screen.

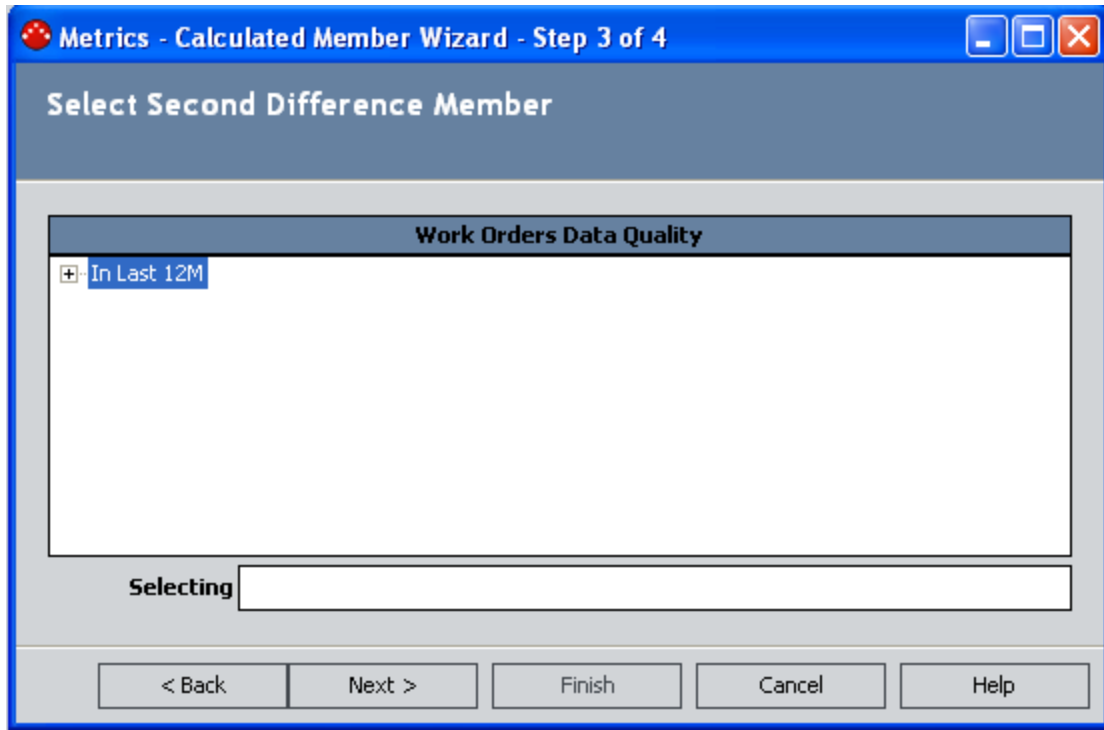


2. Select the option that corresponds to your creation preference:
 - Select the first option to create a difference calculation on columns
 - Select the second option to create a difference calculation on rows.
3. Click the **Next** button.

The **Select First Difference Member** screen appears.



4. From the list of members in the Metric View, choose the first member for the calculation.
5. Click the **Next** button.
The **Select Second Difference Member** screen appears.



6. From the list of members in the Metric View, select the second member for the calculation. Note that you cannot create a difference if a cross-join exists on the same axis as the chosen row or column.
7. Click the **Next** button.
The **Specify Name** screen appears.

Metrics - Calculated Member Wizard - Step 4 of 4

Specify Name

Name

Unique Name

Type

Axis

Expression

< Back Next > Finish Cancel Help

8. In the **Name** text box, type a name for the calculation.
9. Click the **Finish** button.

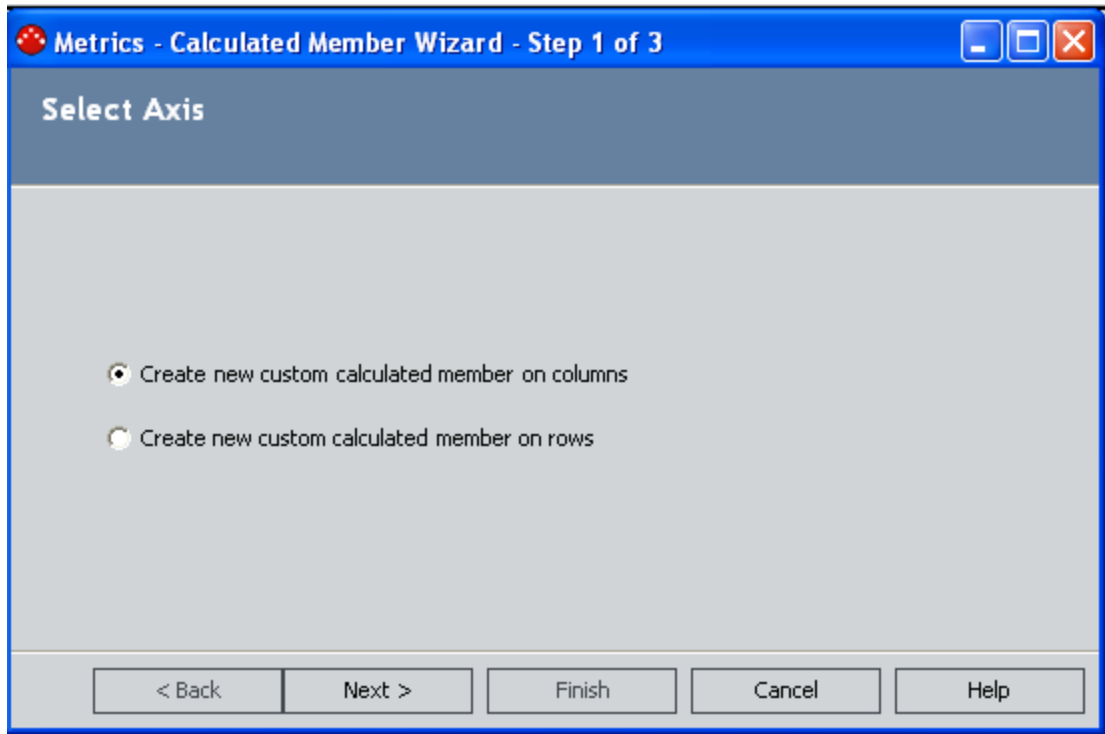
The new calculated member is added to the Metric View.

Performing a Customized Calculation

To perform a customized calculation:

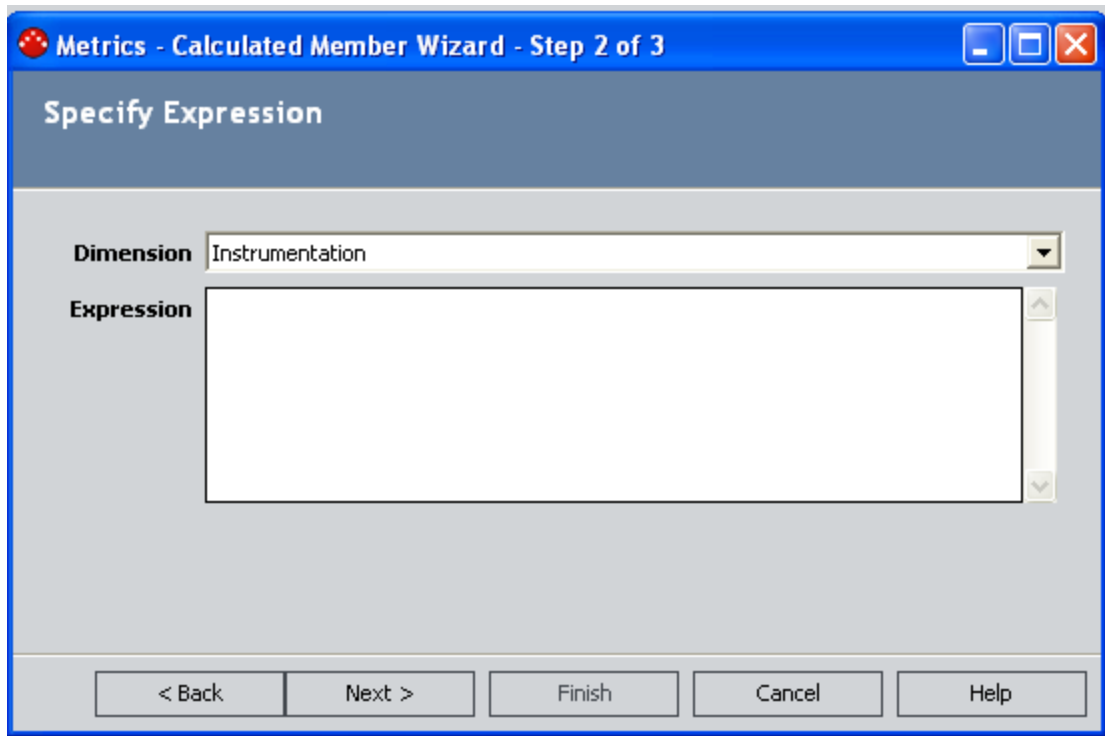
1. On the [Viewer Tasks menu](#), click the **Calculation** link, and then click **Custom**.

The **Metrics - Calculated Member Wizard** appears, displaying the **Select Axis** screen.



2. Select the option that corresponds to your creation preference:
 - Select the first option to create a calculation on columns
 - Select the second option to create a calculation on rows.
3. Click the **Next** button.

The **Specify Expression** screen appears.



4. Select a dimension for the expression. Also, provide the expression for the customized calculation.
5. Click the **Next** button.

The **Specify Name** screen appears.

Metrics - Calculated Member Wizard - Step 3 of 3

Specify Name

Name

Unique Name

Type

Axis

Expression
< Back Next > Finish Cancel Help

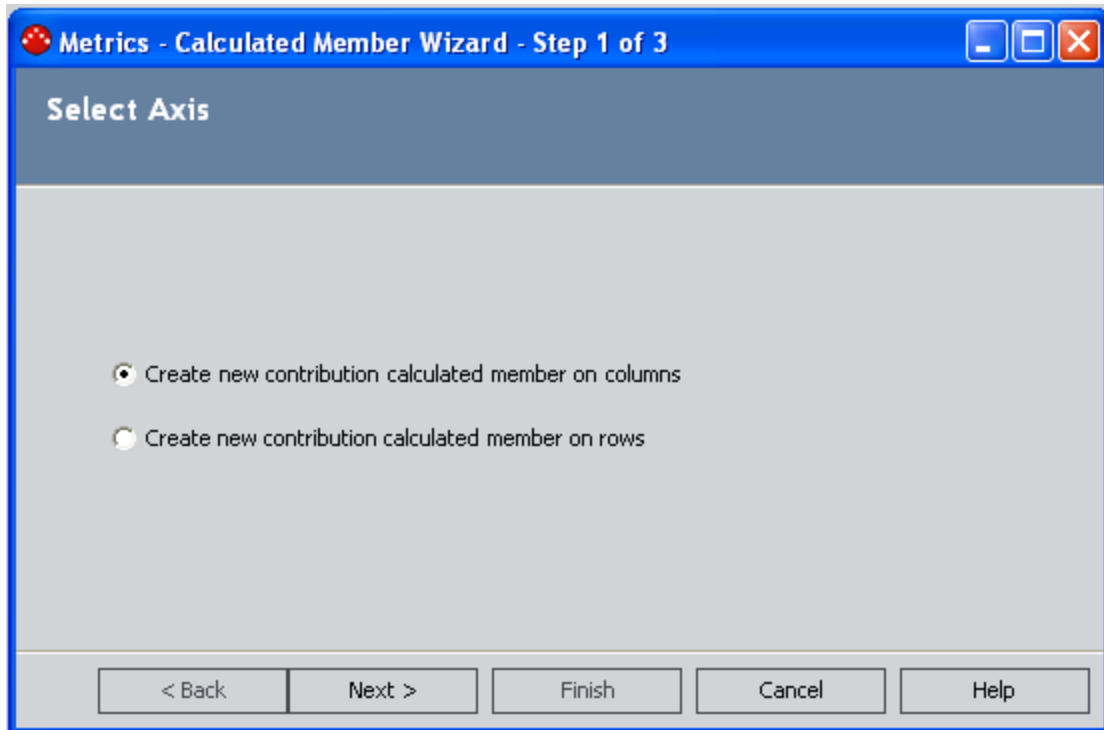
6. In the **Name** field, type the name of the calculated member. There is no limit to the number of characters.
7. Click the **Finish** button.
The calculation is added to the Metric View.

Editing a Calculation

To edit an existing calculation:

1. On the **Design** page, right-click the calculation that you want to edit, and then click **Edit**.

The **Calculated Member Wizard** appears.



2. Modify the calculation as desired.
3. Click the **Finish** button
Your changes are saved.

Examples of Calculations

Example 1:

In the following example, a particular piece of equipment, in addition to its family and subfamilies, is being evaluated on its financial opportunity in comparison to all pieces of equipment. The user has chosen to work with the dimension Measures, and the Financial Opportunity within the dimension. This number has been divided by a sum based on the current member's ancestor and children, and its Financial Opportunity.

```
[Measures].[Opportunity_$$]/Sum({Ancestor([Equipment].CurrentMember, 1).Children}, [Measures].[Opportunity_$$]))
```

Example 2:

You may choose to elaborate on a basic query to specify the results for null measurements. The following example builds on the previous example. This instance illustrates the opportunity cost divided by low-level children of a high-level parent. In the first line, the MDX query specifies that if the current member (the piece of equipment) does not have a parent family, the result for the calculation result will be 1. The blue section of the following code states that if the measure Opportunity Cost equals 0, then the results should return the calculation 0.

```
IIF(Ancestor([Equipment].CurrentMember, 1) IS NULL, 1, IIF([Measures].[Opportunity_$$]=0, 0, [Measures].[Opportunity_$$]/Sum({Ancestor([Equipment].CurrentMember, 1).Children}, [Measures].[Opportunity_$$])))
```

Note that the color red denotes a function in the query.

Example 3:

A value expression can be used to evaluate overall repair cost, and the costs within a site. The difference in a repair cost can be compared between all repairs for a site, and then all repairs for a particular piece of equipment. For this type of calculation, you would type in the [Measures] dimension, and then the measure Cube, [Site Repair] (see example). Note that when calculating the difference in a repair cost column, drilling down the hierarchy will automatically calculate the difference.

Difference in repair cost

```
[Measures].[Site_Repair_Cost] - [Measures].[Company_Wide_Repair_Cost]
```

Example 4:

An MTBF calculation can be created with a fixed analysis period. For example, the percentage of repairs within a given time period can be calculated. In this case, we will limit the length of the fixed analysis period to 1748 days. As stated in the highlighted area, if the number of repairs equals 0, then the result for the calculation will be 0.

```
IIF([Measures].[N of Repair]= 0, 0, 1748 x [Measures].[N of Equipment]/[Measures].[N of Repair])
```

Example 5:

Examples of Calculations

The next example shows an MTBF calculation with 12-month Moving analysis period (length 12 month). The calculation results will change depending on the current member (the current month). Figures are calculated dynamically. If there's no monthly data, a 0 will be calculated.

```
12 x ([Measures].[Number of Equipment], [Failure Date].[All Failure Dates])/
```

```
lIf(isempty([Failure Date].currentmember.lag(11)), 0, Sum({[Failure Date].-  
currentmember.lag(11): [Failure Date].currentmember},[Measures].[Total Number of  
Failures]))
```

```
Sum({set: date from last 11 month to current month}, measure)
```

To specify that the system should check to see if there are a total of 12 months (11 back from the current month), type in the following code. If 12 months do not exist, the value is calculated as 0. Otherwise, the MTBF is calculated in the Month unit.

```
lIf(isempty([Failure Date].currentmember.lag(11)), 0, otherwise)
```

Saving a Metric View

After you create or modify a Metric View, you can save your changes from either the **Results for <Metric View>** page or the **Design** page.

To save a Metric View:

1. On the **Results for <Metric View>** page or the **Design** page, on the **Common Tasks** menu, click the **Save Metric View** link.
 - If the Metric View already exists in the Catalog, your changes are saved to the existing View in its current location.
 - If the View has not yet been saved, the **Save As** dialog box appears. The rest of these instructions assume that you are saving a Metric View that has not yet been saved.


Save As

Save Item

Save in: Public\Meridium\Modules\Recommendation Manager\Queries

Name	Caption	Description
------	---------	-------------

Name:

Caption: 

Description:

Of type: Metric View


Save

Cancel

Add to Home Page

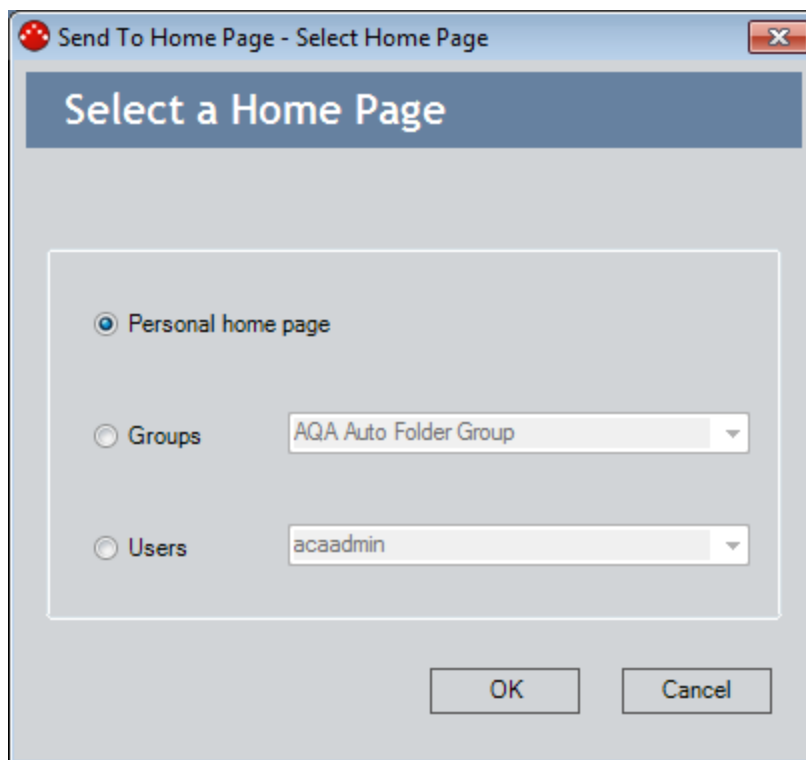
Note: If you want to save an existing Metric View with a new name or in a different location, you can click the **Save Metric View As** link on the **Common Tasks** menu.

2. In the Catalog, navigate to the folder in which you want to save the Metric View. The **Caption** text box is populated automatically with the value that you typed in the **Name** text box.

3. If desired, click the  button to view and modify the translations for the specified caption.
4. If desired, type a description of the Metric View in the **Description** text box. This is not required to save the Metric View.
5. If desired, select the **Add to Home Page** check box if you want to add a link to the Metric View to a Home Page. This is not required to save the Metric View.
6. Click the **Save** button.

If you:

- Selected the **Add to Home Page** check box, the search is saved to the Catalog, and the [Send to Home Page - Select Home Page](#) dialog box is displayed.



Depending upon your membership in the MI Power User Role Security Group and whether or not you are a Super User, you can use the **Send to Home Page - Select Home Page** dialog box provide a link to your Personal Home Page, a Group Home Page, or the Personal Home Page for a particular Security User.

- Did not select the **Add to Home Page** check box, or you have completed the process of adding the search to a Home Page, the **Save Graph** dialog box closes, and the search is saved to the Catalog.

Deleting a Metric View

You can delete a Metric View from either the **Results for <Metric View>** page or the **Design** page.

To delete a Metric View:

1. Open the Metric View either on the **Results for <Metric View>** page or the **Design** page.

2. On the **Common Tasks** menu, click the **Delete Metric View** link.

A confirmation message appears, asking if you really want to delete the Metric View.

3. Click the **Yes** button.

The Metric View is deleted from the database.

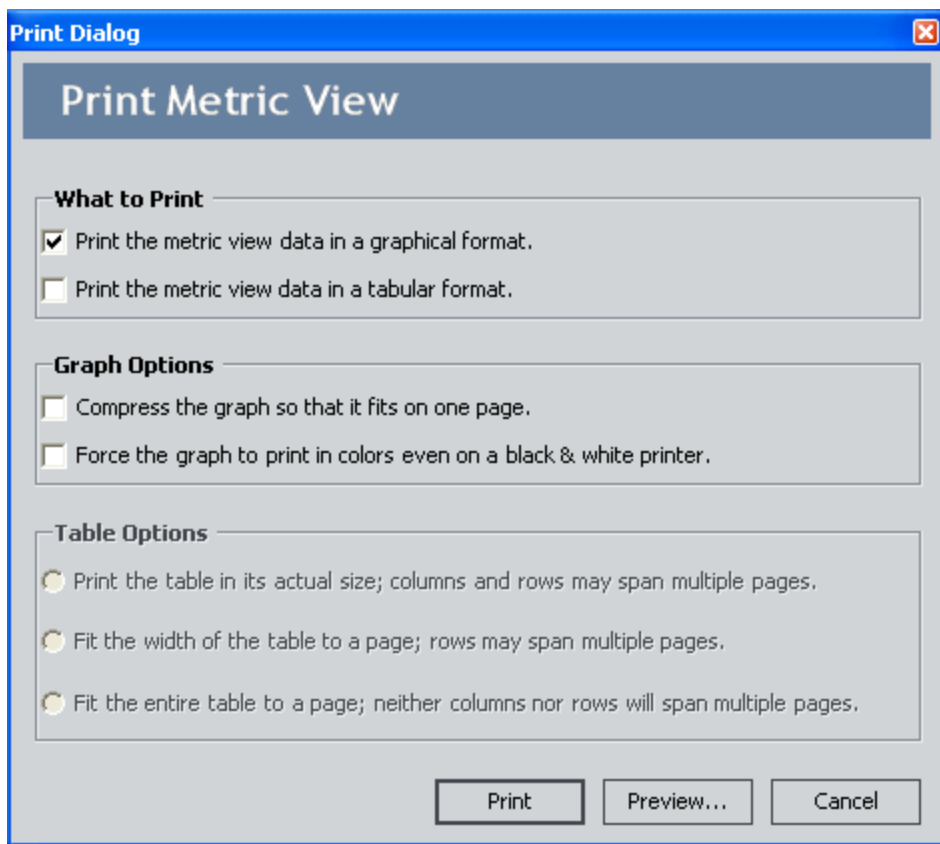
Printing a Metric View

Printing a Metric View is similar to printing other screens in the Meridium APM Framework application. There is, however, an additional level of options that you must set before you can print the Metric View. Note also that you can print the Metric View only from the **Results for <Metric View>** page.

To print a Metric View:

1. [Open the Metric View](#) on the **Results for <Metric View>** page.
2. On the **Common Tasks** menu, click the **Print Metric View** link.

The **Print Dialog** box appears.



3. Set the **What to Print** options:
 - To print a copy of the graph, select the **Print the Metric View data in a graphical format** check box.
 - To print a copy of the table, select the **Print the Metric View data in a tabular format** check box.
 - To print both the graph and the table, select both check boxes.

4. Set the **Graph Options** (enabled only if you selected the **Print the Metric View data in a graphical format** check box):
 - If you want the graph to fit on a single page, select the **Compress the graph so that it fits on one page** check box. This option works well with graphs that have a small to moderate amount of information. If a graph contains a lot of data, it will be difficult to view on one page.
 - If you want the graph to be printed in color, select the **Force the graph to print in colors even on a black and white printer** check box. On a black and white printer, this will print in gray scale. Note that by default, a Metric View is printed in black and white.
5. Set the **Table Options** (enabled only if you selected the **Print the Metric View data in a tabular format** check box):
 - If you want to print the table at 100% its actual size, select the **Print the table in its actual size; columns and rows may span multiple pages** check box.
 - If you want the width of the table to be confined to one page, but not necessarily the length, select the **Fit the width of the table to a page; rows may span multiple pages** check box.
 - If you want the table to be confined to one page, select the **Fit entire table to a page; neither columns nor rows will span multiple pages** check box.
6. Print the Metric View:
 - If you want to print the Metric View with the current options, click the **Print** button.
 - If you want to set additional options on the **Preview** window, click the **Pre-view** button.

Overview of Key Performance Indicators

Key Performance Indicators (KPIs) are metrics that quantify the objectives of an organization for the purpose of allowing that organization to monitor their performances. Every KPI should be linked directly to a business goal. If the variables within a metric are performing successfully, a business goal can be attained for a company. Likewise, if certain variables within the metric are not up to par, a company may fall short of its business goal. By closely tracking the variables within a KPI, problem areas can be assessed and targeted, while efficient areas can still be improved.

The first step to establishing an efficient KPI monitoring process is [developing the KPIs](#). After KPIs have been developed, they can be tracked and monitored on a continual basis. When developing KPIs, you should focus on:

- Developing a set of metrics that reflect the objectives of the company in delivering outputs. These metrics will be aligned with business unit objectives and KPIs within each relevant perspective.
- Developing indicators of processes and activities that measure drivers and enablers of performance and point to action.

The Metrics and Scorecards module provides two tools for managing KPIs:

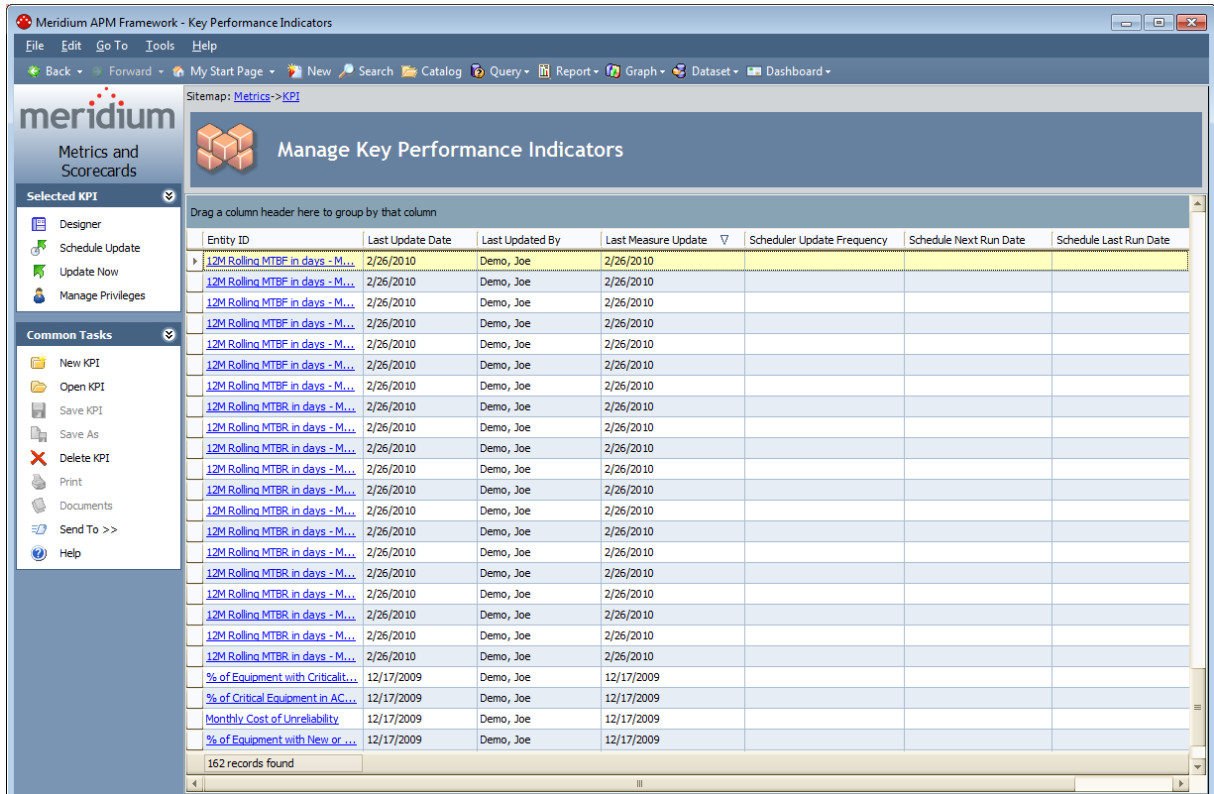
- The [KPI Viewer](#), where you can view and manage existing KPIs.
- The [KPI Designer](#), where you can design new KPIs and modify the design of existing KPIs.

Accessing the List of KPIs

To access the list of KPIs:

- On the **Metrics and Scorecards Start Page**, click the **Manage Key Performance Indicators** link.

The [Key Performance Indicators page](#) appears.



Selected KPI Menu



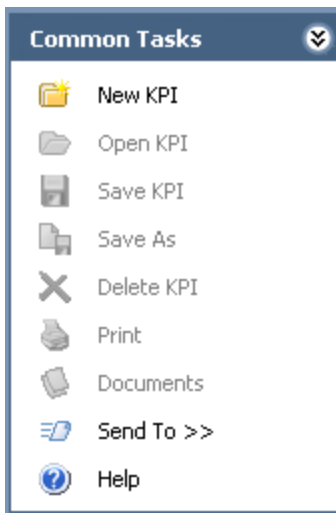
The **Selected KPI** menu on the **Key Performance Indicators** page contains the following links:

- **Designer:** Displays the selected KPI on the **KPI Editor** page. This link *appears* only when you select a row containing a KPI record.
- **Schedule Update:** Displays the **KPI Update Schedule** dialog box, where you can schedule a KPI to be updated at a certain interval. This link is enabled only when you select a row containing a KPI record.
- **Update Now:** Updates the selected KPI record. This link is enabled only when you select a row containing a KPI record.

Note: If you update a parent KPI, all other KPIs in that hierarchy will also be updated.

- **Manage Privileges:** Displays the **Manage Privileges** window, where you can assign or revoke access rights to the KPI for users or groups. This link is enabled only when you select a row containing a KPI record.

Common Tasks Menu



The **Common Tasks** menu on the **Key Performance Indicators** page contains the following links:

- **New KPI:** Opens the **KPI Builder**, where you can [create a KPI record](#).
- **Open KPI:** Opens the selected KPI on the **View KPI** page. This link is disabled until you select a row containing a KPI record.
- **Save KPI:** This link is disabled on the **Key Performance Indicators** page.
- **Save As:** This link is disabled on the **Key Performance Indicators** page.
- **Delete KPI:** After displaying confirmation message, [deletes the selected KPI](#).
- **Print KPI:** This link is disabled on the **Key Performance Indicators** page.
- **Documents:** This link is disabled on the **Key Performance Indicators** page.
- **Send To:** Displays a submenu with options that let you provide a link to the current page on your desktop (create shortcut), in an email message, or on a Home Page. If you are creating a new KPI record, this link is disabled until you save the KPI record.
- **Help:** Displays the context-sensitive Help topic for the **Key Performance Indicators** page.

Options for Creating a KPI

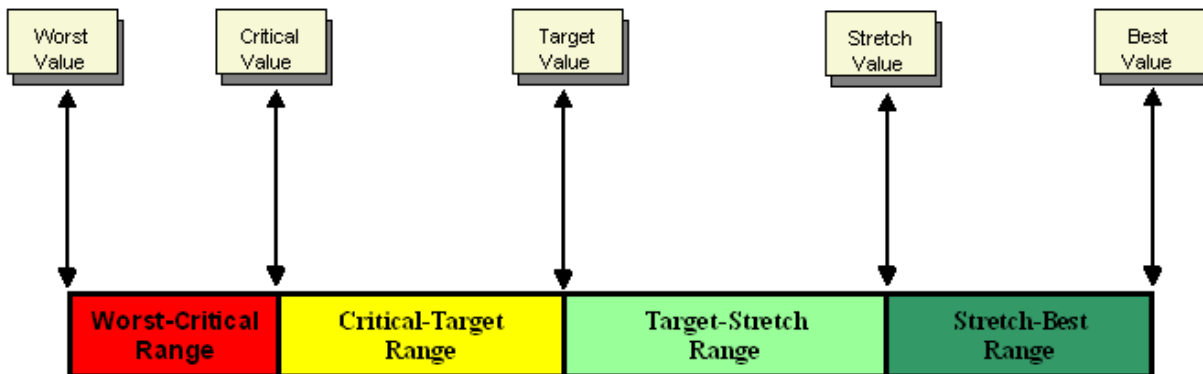
You can create a KPI in several ways:

- **[Manually Entered Data Input](#)**: By manually defining the input for the KPI, you are choosing to use the specific values that you provide in lieu of a data source.
- **[Aggregation from Sub-indicators](#)**: By using an aggregation, you specify that the sub-indicators, or the lower level variables of the KPI, should be calculated together for the data source. An aggregation is a table or structure containing pre-calculated data for a Cube.
- **[Analysis Services Query](#)**: By using an Analysis Services query, you are extracting data directly from a cube that has been configured in SQL Server Analysis Services.
- **[Meridium APM Query](#)**: By using a Meridium APM query, you are extracting data directly from the Meridium APM database.

About Specifying Limits for a KPI

When you create a KPI for equipment via the **KPI Builder**, on the **Specify Limits** screen, you will be prompted to specify Limit values for the KPI. The limits that you specify are values that will define a performance range for the KPI based on your expectations for the equipment. The *actual* performance of the equipment will be evaluated based on this range. For example, your monthly water bill could be a *Key Performance Indicator* of the plumbing system in your home. This means that, based on your expectations, a high water bill (i.e., the Actual value) could indicate leaks in your system, and a low water bill should indicate a leak-free plumbing system.

The KPI range is essentially a scale from *Worst* to *Best*, and the Limit values are essentially thresholds for these ranges that are based upon your expectations for the equipment. The following image shows the KPI ranges and where the Limit values that define these ranges appear. When measurements are taken, the Actual value may fall between or equal the Limit values, which will indicate where the equipment is in terms of performance (e.g., If the Actual value falls between the Target and Stretch Limit values, the KPI is in the *Target-Stretch* range).



The Limit values will vary depending on what you want to measure. For example, if you create a KPI based on your monthly water bill, the range values will be measured in dollar amount, and your Best value would be a low number (e.g., \$30.00), while your Worst value would be a high number (e.g., \$300.00). In another case, the KPI may be based on a water heater, which would require that Best value to be a high number and the range to be measured in degrees Fahrenheit.

To continue with the water bill example, the monthly cost for water usage in your home would be the key indicator of the overall performance of the equipment involved in the plumbing system. A high water bill might indicate that a person in your home is using an excessive amount of water, that there is a leak in a pipe, or that a piece of equipment is malfunctioning, or all of the above. The KPI should serve as the first step in tracking the performance of the system.

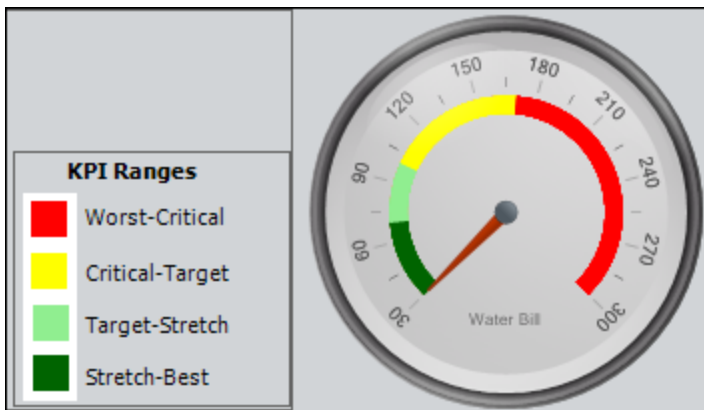
Continuing with the water bill example, the following table shows:

- The KPI ranges.
- The Limit values that define the ranges.

- Where the Actual Value would fall on the range. The Actual Value corresponds to the amount due on a monthly water bill.
- What these values could indicate about the water system in your home.

Ranges	Worst – Critical Range	Critical – Target Range	Target – Stretch Range	Stretch – Best Range	
Limit Values	300	170	100	70	30
Actual Value	Between \$300 and \$170	Between \$170 and \$100	Between \$100 and \$70	Between \$70 and \$30	
What This Could Indicate	You probably have a serious leak, equipment malfunction, or both and need to take action.	You may need to investigate the possibility of a leak, an equipment malfunction, or the excess use of water by the people in your home.	Your water system is performing at an expected level or better, and you do not need to investigate the possibility of a leak, equipment malfunction, or excess water usage.	Your water system is performing beyond your expectations.	

The following image shows the **KPI Ranges** key and the Dial as it would appear on the **View KPI** page after you create a KPI based on the water bill example. The Dial is a formatted view of the KPI Range that you define when you specify the Limit values.



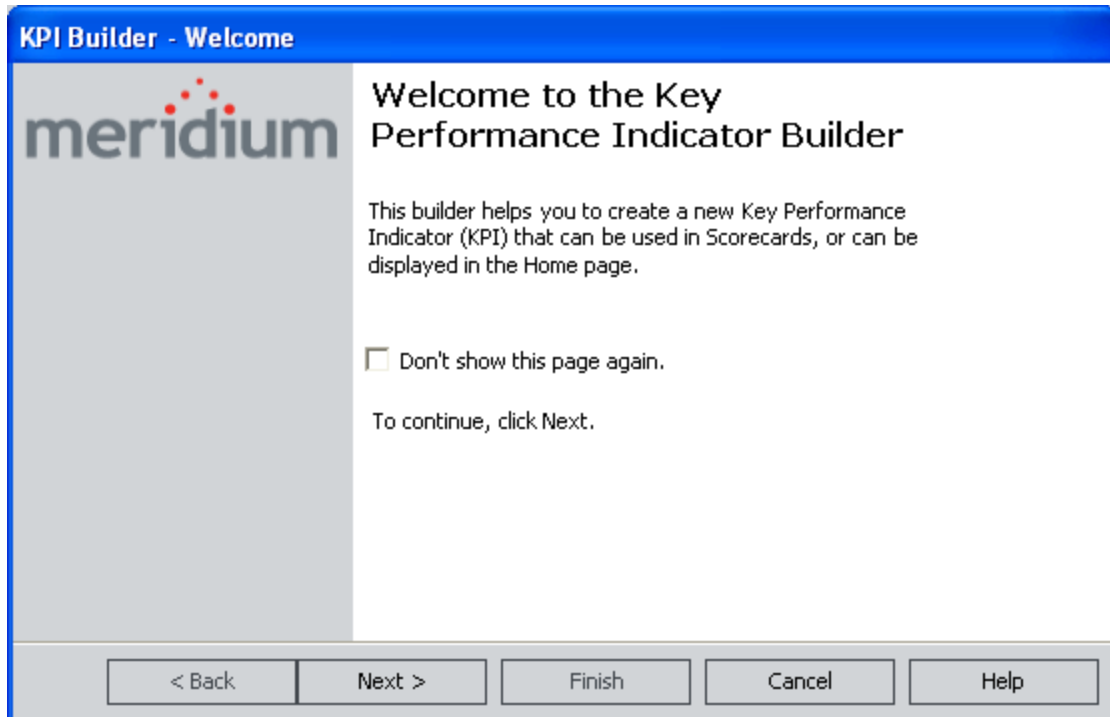
Manually Entering Data for a KPI

When you manually define input for a KPI, you are choosing to use specific values that you provide instead of an external data source.

To create a new KPI from manually entered data:

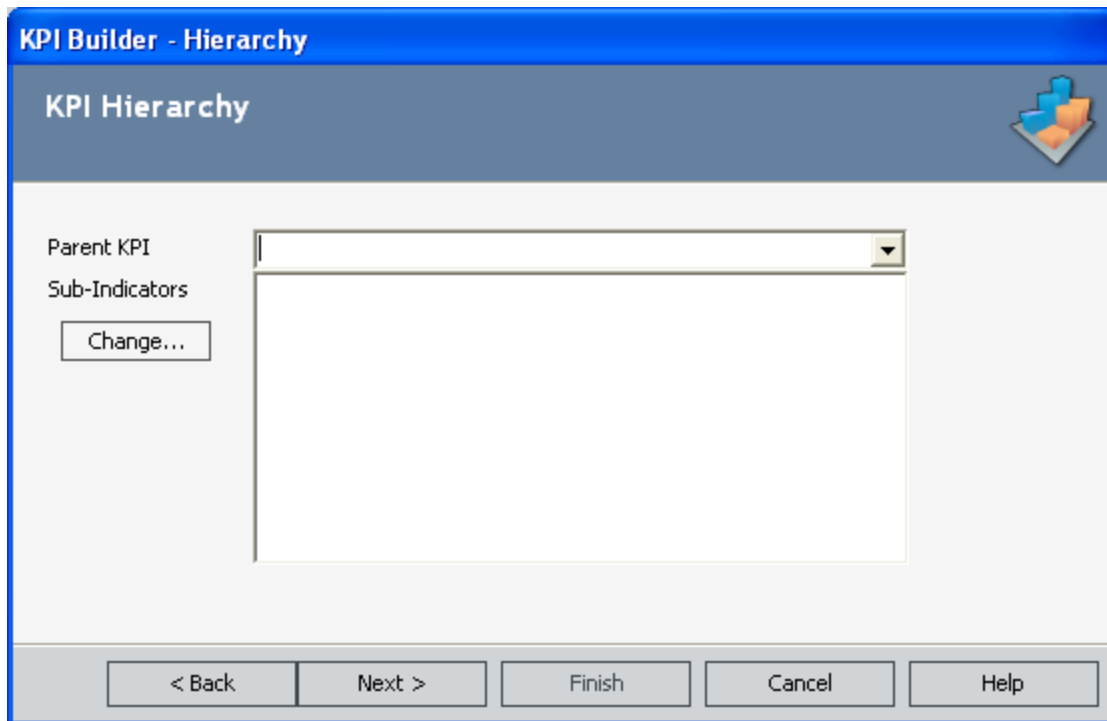
1. On the [Key Performance Indicators page](#), on the **Common Tasks** menu, click the **New KPI** link.

The **KPI Builder** appears, displaying the **Welcome** screen.



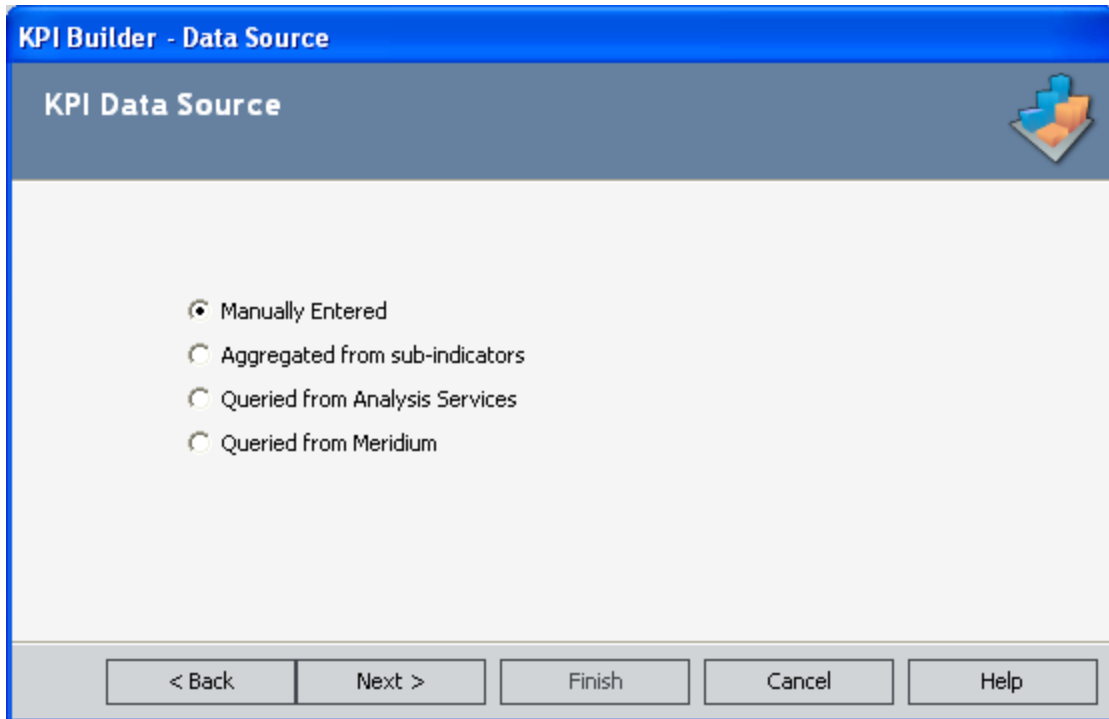
2. Click the **Next** button.

The **Hierarchy** screen appears.

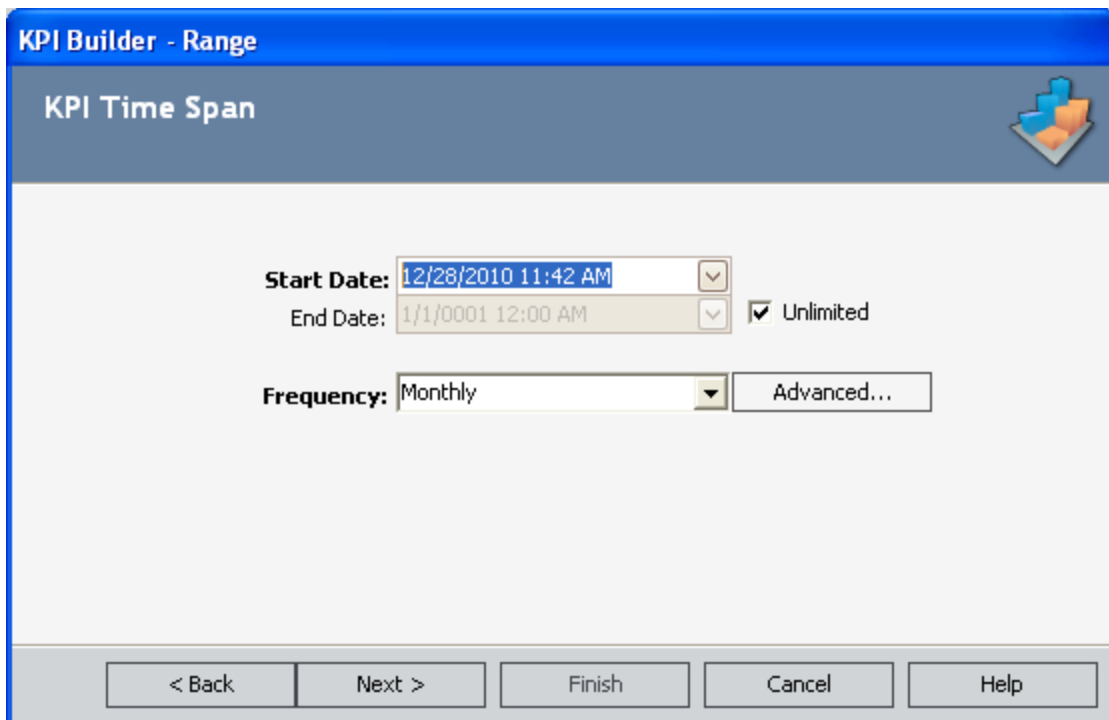


3. If the KPI should function as a sub-indicator for another KPI, in the **Parent KPI** list, select the parent KPI for which this KPI will be a sub-indicator.
4. If this KPI will serve as a parent KPI with sub-indicators, click the **Change** button, and then select the desired sub-indicators.
5. Click the **Next** button.

The **Data Source** screen appears.

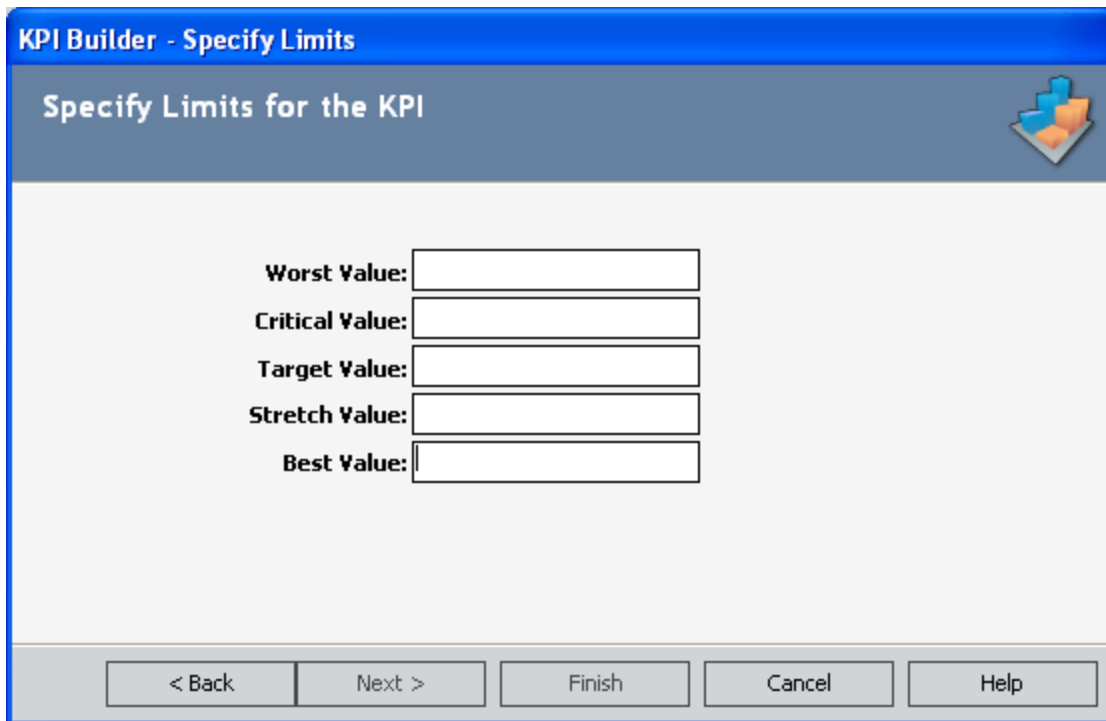


6. Select the **Manually Entered** option, and then click the **Next** button.
The **Range** screen appears.



7. Choose the collection time for the measurement. This represents the time period in which the measurement takes place. The Start Date and End Date should be selected from the drop-down boxes. Note that an End Date is optional, as you can continuously track the KPI measures collection. You can select the **Unlimited** check box if you do not want to specify a final date.
8. Click the **Next** button.

The **Specify Limits** screen appears.



KPI Builder - Specify Limits

Specify Limits for the KPI

Worst Value:

Critical Value:

Target Value:

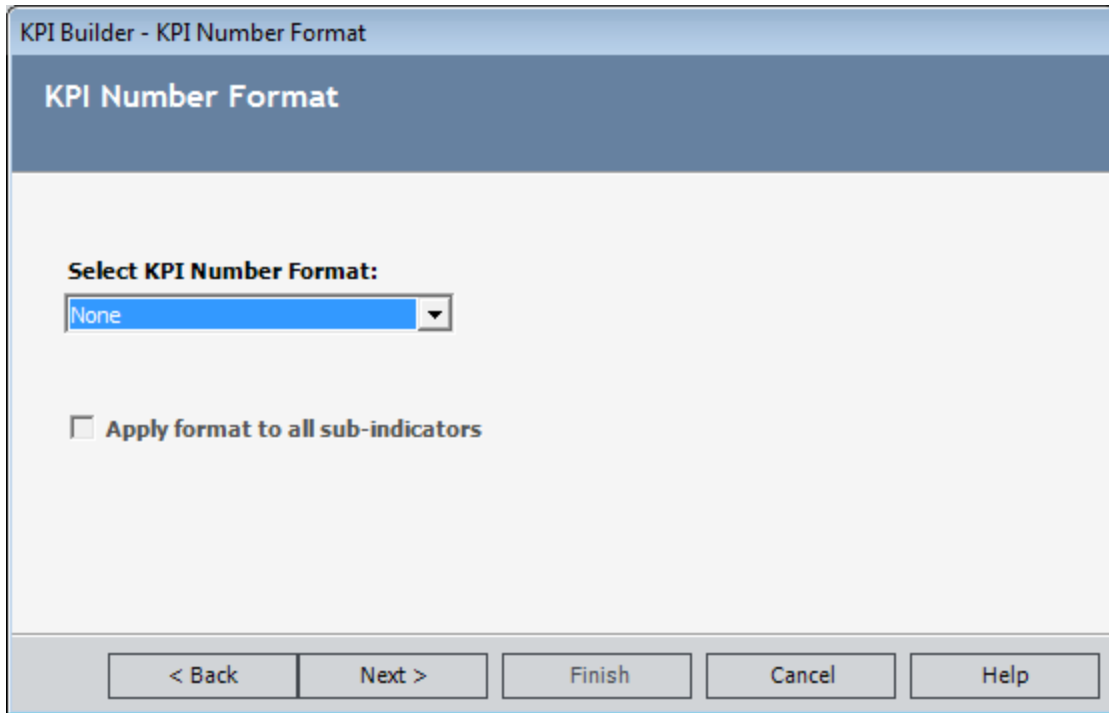
Stretch Value:

Best Value:

< Back Next > Finish Cancel Help

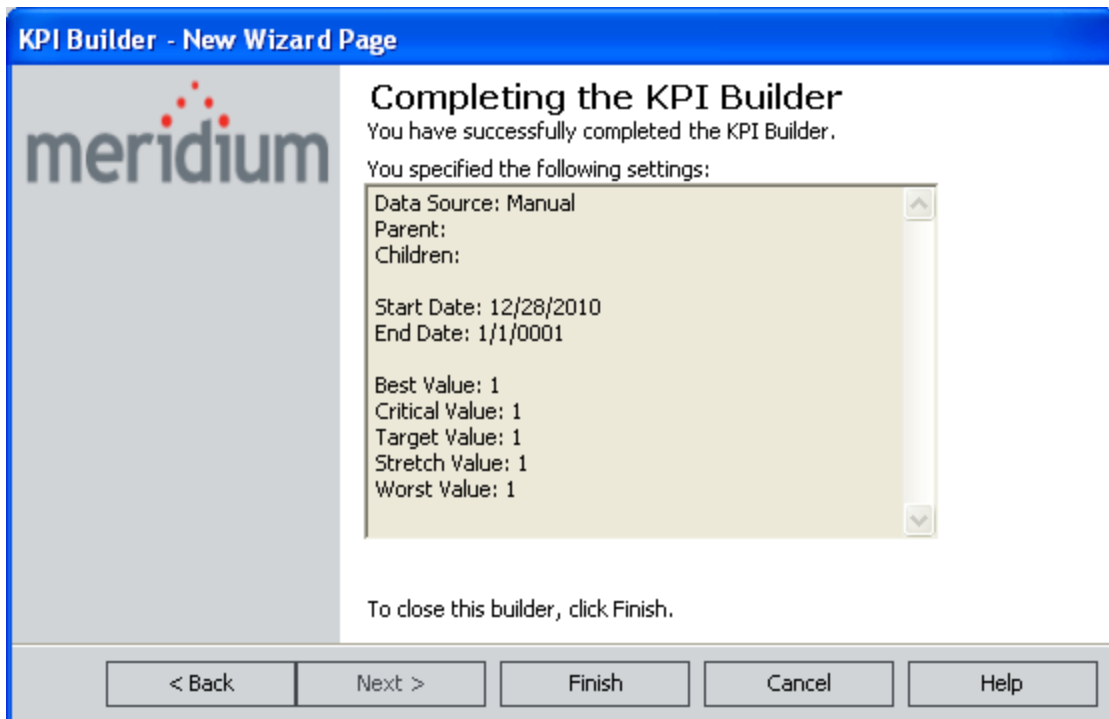
9. Specify limiting values for the KPI measurement. Supply values for each of the fields:
 - **Worst Value:** The value that should be strictly avoided.
 - **Critical Value:** The value that will indicate that the KPI is not reaching its potential target. If an aggregation function was selected for that field, enter a value of zero.
 - **Target Value:** A quantitative measurement of a performance metric that is to be achieved by a given time. If an aggregation function was selected for that field, enter a value of zero.
 - **Stretch Target:** A much higher quantitative measurement than a Target Value, demanding breakthrough performance for achievement. If an aggregation function was selected for that field, you may enter a value of zero.
 - **Best Value:** The optimal output level.
10. Click the **Next** button.

The **KPI Number Format** screen appears.



11. [Select the desired format for numeric values in the KPI.](#)
12. Click the **Next** button.

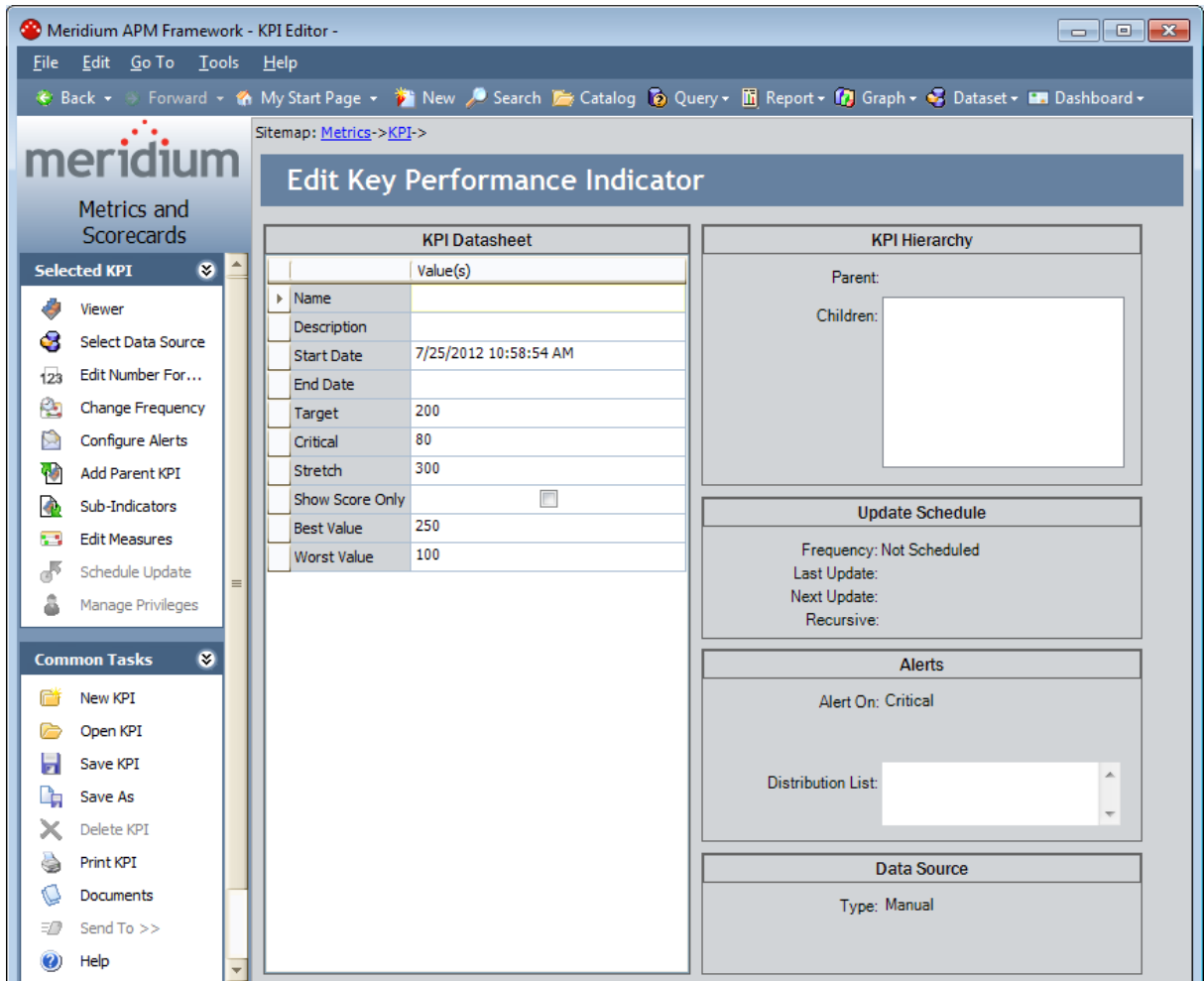
The **New Wizard Page** appears.



Note: If you chose to make the End Date unlimited, the End Date appears as 1/1/0001 in the summary.

13. Click the **Finish** button to finalize the creation of the KPI.

The **KPI Editor** page appears.



Defining an Aggregation from Sub-indicators for a KPI

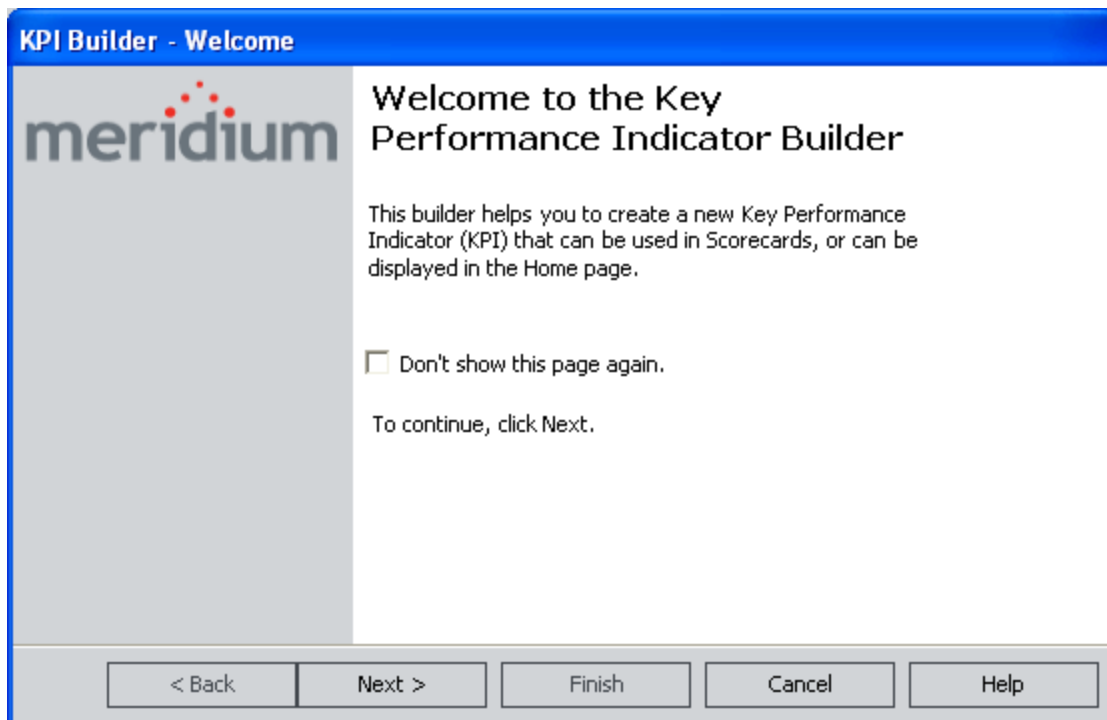
An *aggregation* is a table or structure containing pre-calculated data for a cube. By using an aggregation, you are specifying that the sub-indicators, or the lower-level variables of the KPI, should be calculated together for the data source. Within Metrics and Scorecards, you can aggregate sub-indicators by using a sum, an average, a weighted average, a minimum, or a maximum function. The values that can be aggregated are the actual value, the target value, the stretch value and the critical value.

In many situations, KPIs need to be reported in a hierarchical manner. For instance, the availability measures for each individual process unit may be aggregated by using capacity rates as a weight factor to evaluate the overall availability performance of a plant. Sometimes KPIs are reported in hierarchies just for the purpose of facilitating performance analysis. As another example, normalized scores of mean time between failure (MTBF) from pumps, compressors, fans, and gas turbines in a plant might be aggregated to indicate the overall MTBF performance of the rotating equipment. Other examples include sub-indicators of a KPI in different locations.

To define an aggregation from sub-indicators:

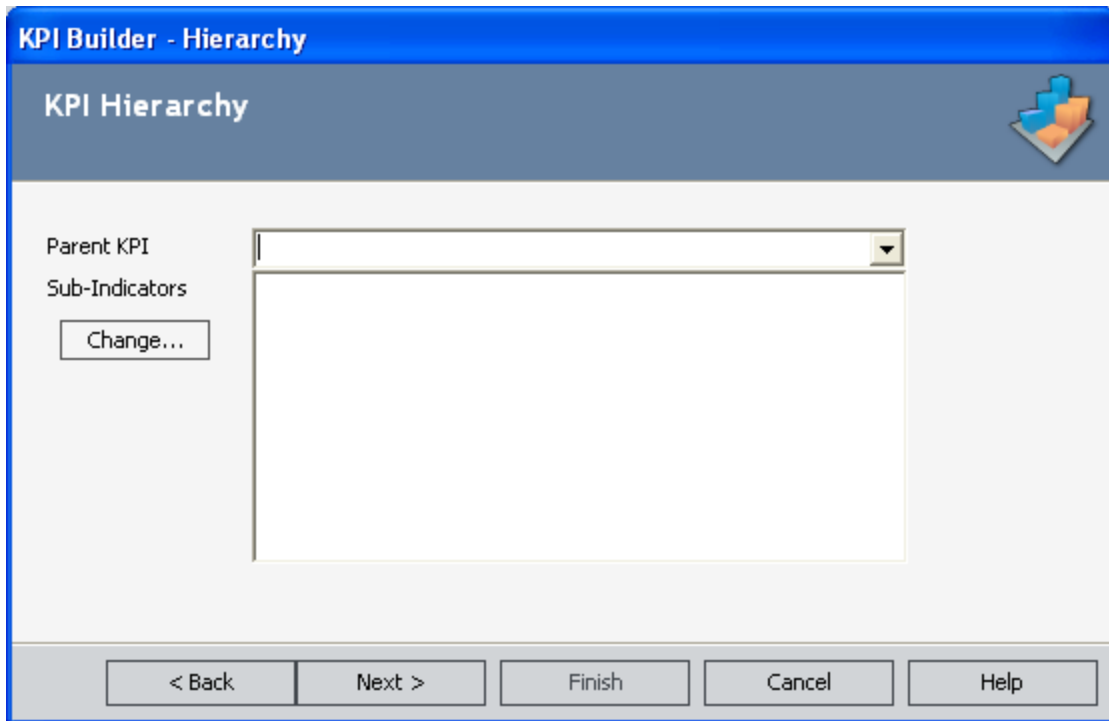
1. On the [Key Performance Indicators page](#), on the **Common Tasks** menu, click the **New KPI** link.

The **KPI Builder** appears, displaying the **Welcome** screen.



2. Click the **Next** button.

The **Hierarchy** screen appears.

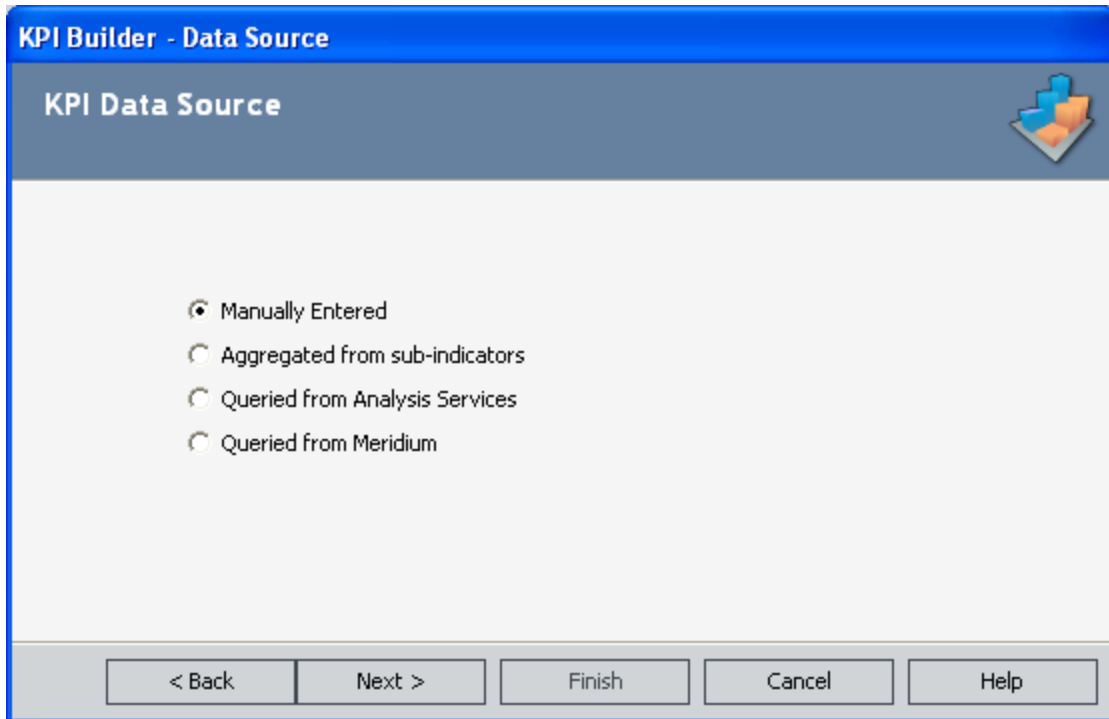


3. If the KPI should function as a sub-indicator for another KPI, in the **Parent KPI** list, select the parent KPI for which this KPI will be a sub-indicator.
4. If this KPI will serve as a parent KPI with sub-indicators, click the **Change** button, and then select the desired sub-indicators.

Note: A sub-indicator is a KPI that provides additional details about the current KPI or is the KPI from which you will pull values using an aggregation function.

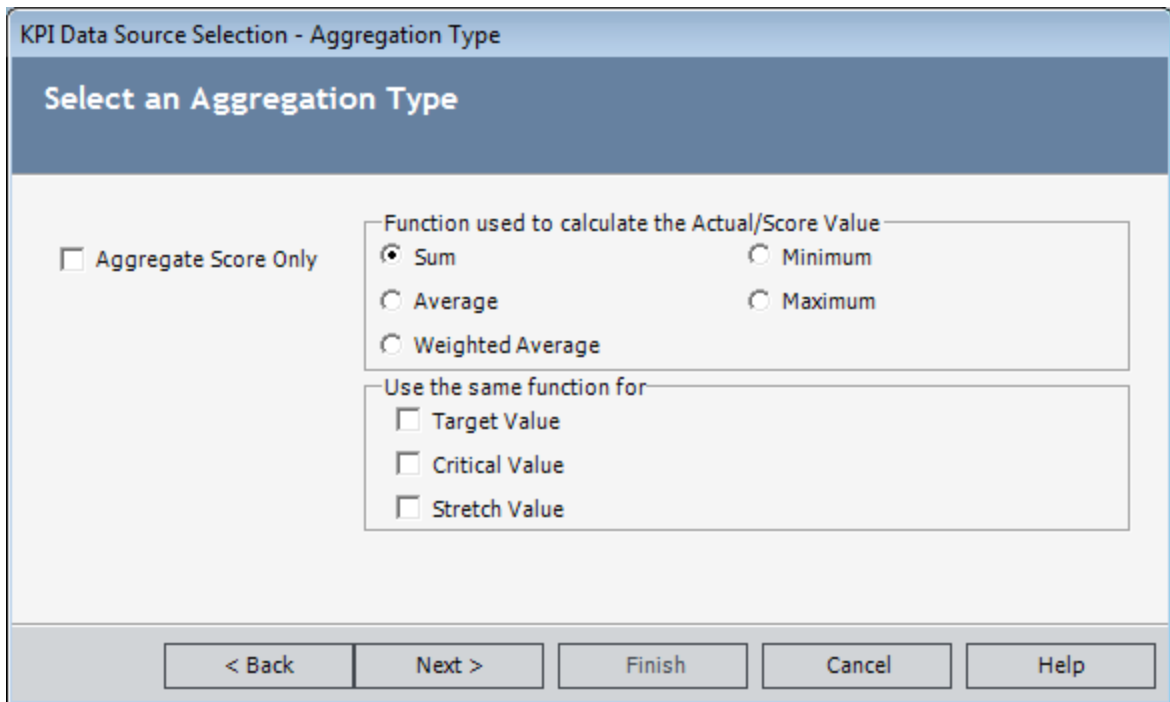
5. Click the **Next** button.

The **Data Source** screen appears.



6. Select the **Aggregated from sub-indicators** option, and click the **Next** button.

The **KPI Data Source Selection** builder appears, displaying the **Aggregation Type** screen.



7. If you want only a normalized score to be calculated from sub-indicators, select the **Aggregate Score Only** check box. The actual value will not be populated.

Since a normalized score must be a value between 0.0 and 1.0, certain aggregation functions, such as the sum, cannot be used to aggregate scores, and limiting values cannot be aggregated at all. Therefore, if you select the **Aggregate Score Only** check box, the **Sum** option in the **Function used to calculate the Actual/Score Value** section is disabled. Also, the **Target Value**, **Critical Value**, and **Stretch Value** options are disabled in the **Use the same function for** section.

8. Set the **Function used to calculate the Actual/Score Value** option. If you selected the **Aggregate Score Only** check box, then you are determining the function used to calculate the score value. If you did not check the **Aggregate Score Only** check box, then you are determining the function used to calculate the actual value. Select any of the following functions:

- **Sum:** The addition of all sub-indicator measurements.
- **Average:** The calculated average of the sub-indicators.
- **Weighted Average:** The value of the KPI is calculated from the value of its sub-indicators (e.g., V1, V2, V3, and V4) and the value of pre-determined weight factor associated with each sub-indicator (e.g., K1, K2, K3, and K4). The weighted average is usually calculated as $(K1 \times V1 + K2 \times V2 + K3 \times V3 + K4 \times V4)/(K1 + K2 + K3 + K4)$.

- **Minimum:** The smallest sub-indicator measurement possible.
- **Maximum:** The largest sub-indicator measurement possible.

9. Set the **Use the same function for** options. The function you selected to calculate the Actual/Score value will also be used to calculate the values you select in this section.

If you select the [Target Value, Critical Value, and Stretch Value check boxes](#), each of these values will be calculated by the same function. In this case, you can skip to step 14.

-or-

If you leave one or more of the **Target Value**, **Critical Value**, or **Stretch Value** check boxes empty, when you click the **Next** button, the **Range Aggregation** screen will appear, where you will be able to select a different aggregation function for the remaining attributes or select not to use an aggregation function at all. In this case, you can continue with step 10.

10. Click the **Next** button.

The **Range Aggregation** screen appears.

KPI Data Source Selection - Range Aggregation

Select an Aggregation Type for Range Attributes

Attribute: Target

Aggregation function

Sum Minimum

Average Maximum

Weighted Average None

< Back Next > Finish Cancel Help

11. In the **Attribute** list, select the attribute type for which the value will be calculated from sub-indicators. The attributes are the same options that appeared in the **Use the same function for** section on the **Aggregation Type** screen in step 9.
12. In the **Aggregation function** area, select the aggregation function for the attribute that is currently selected in the **Attribute** list. The aggregation functions are the same options that appeared on the **Aggregation Type** screen in step 8.
13. Repeat steps 11 and 12 for until you have selected or reviewed the aggregation function for *each attribute* (i.e., Target, Critical, and Stretch).
14. Click the **Next** button.

If you selected the **Weighted Average** option on the **Select the Aggregation Type** screen, the **Average Weights** screen appears, displaying the sub-indicators you selected for the KPI. If you did *not* select the **Weighted Average** option, you can skip to step 16.

KPI Data Source Selection - Average Weights

Specify the Contribution of each Child KPI

KPI	Weight
AQA - Schedule Update - Every Year	1
AQA - Schedule Update - Every Minute	1
AQA - Schedule Update - Every Week	1
AQA - Schedule Update - Every Day	1
AQA - Schedule Update - Every Month	1

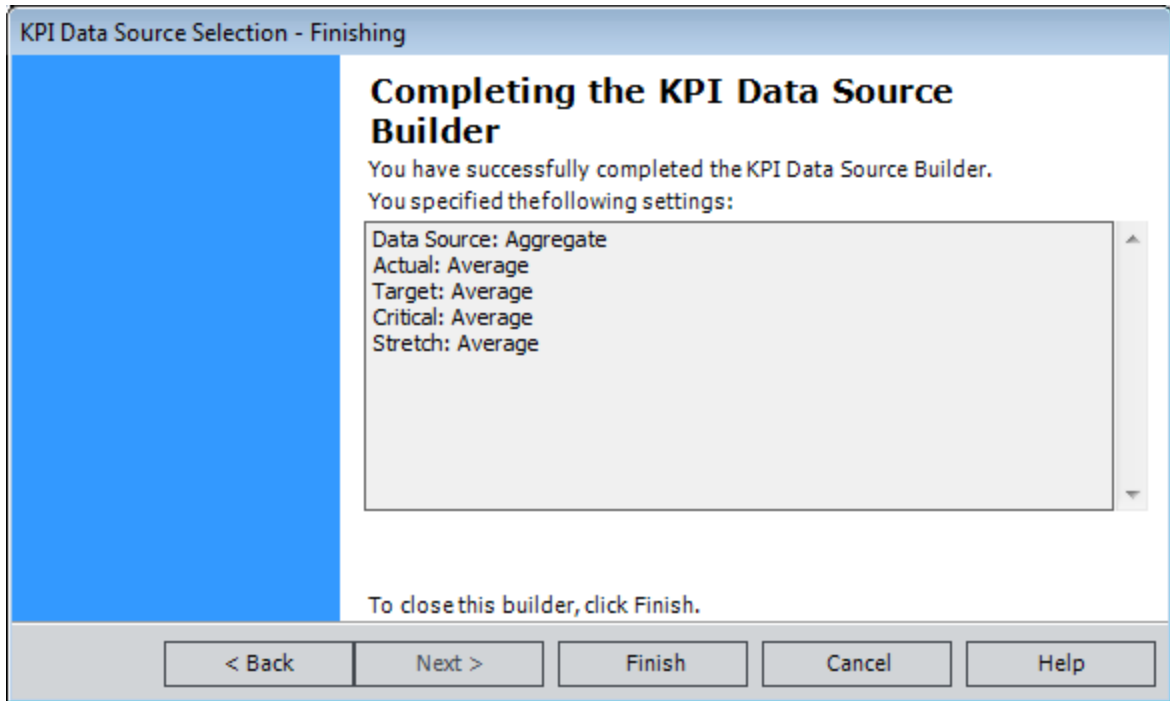
< Back Next > Finish Cancel Help

15. If desired, you can manually change the weight of each sub-indicator in the **Weight** column. The greater the value, the more weight that is given to the associated sub-indicator when the weighted average is calculated.

Note: The sum of the weight factors must be greater than zero, or an error message will be displayed when you click the **Next** button.

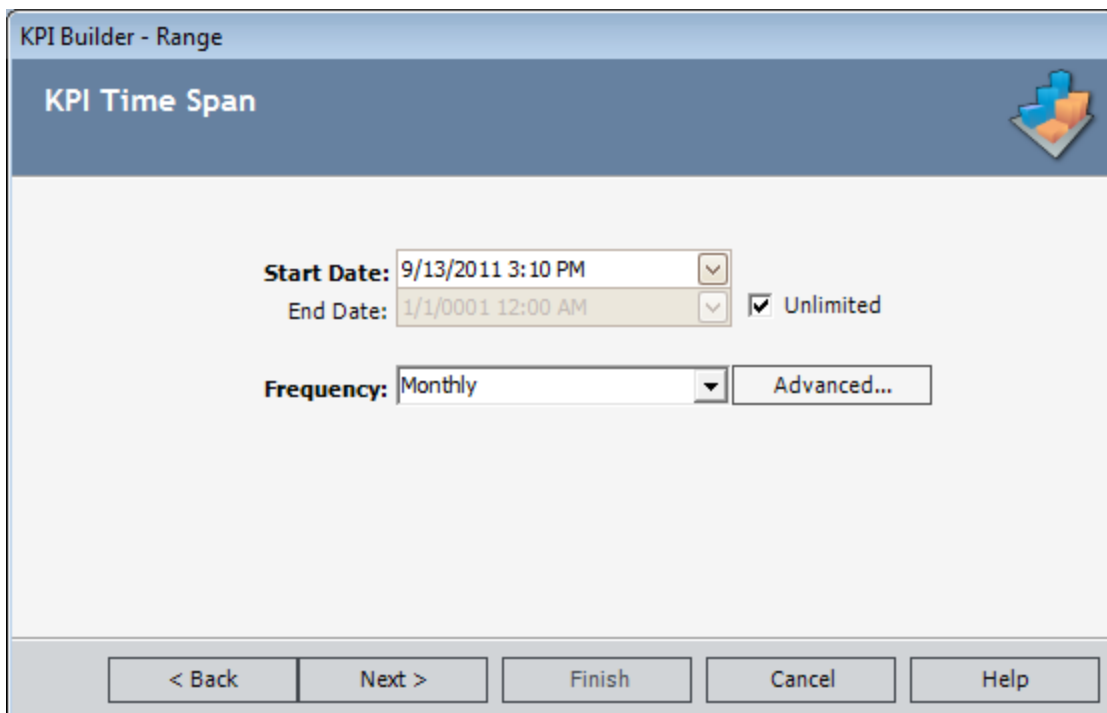
Click the **Next** button.

16. The **KPI Data Source Selection** builder appears, displaying a summary of the data source settings.



17. Click the **Finish** button.

The **KPI Builder** displays the **Range** screen.



18. Choose the collection time for the measurement. This represents the time period in which the measurement takes place. The Start Date and End Date should be selected from the drop-down boxes. Note that an End Date is optional, as you can continuously track the KPI measures collection. You can select the **Unlimited** check box if you do not want to specify a final date.
19. Click the **Next** button.

The **Specify Limits** screen appears.

KPI Builder - Specify Limits

Specify Limits for the KPI

Worst Value:

Critical Value:

Target Value:

Stretch Value:

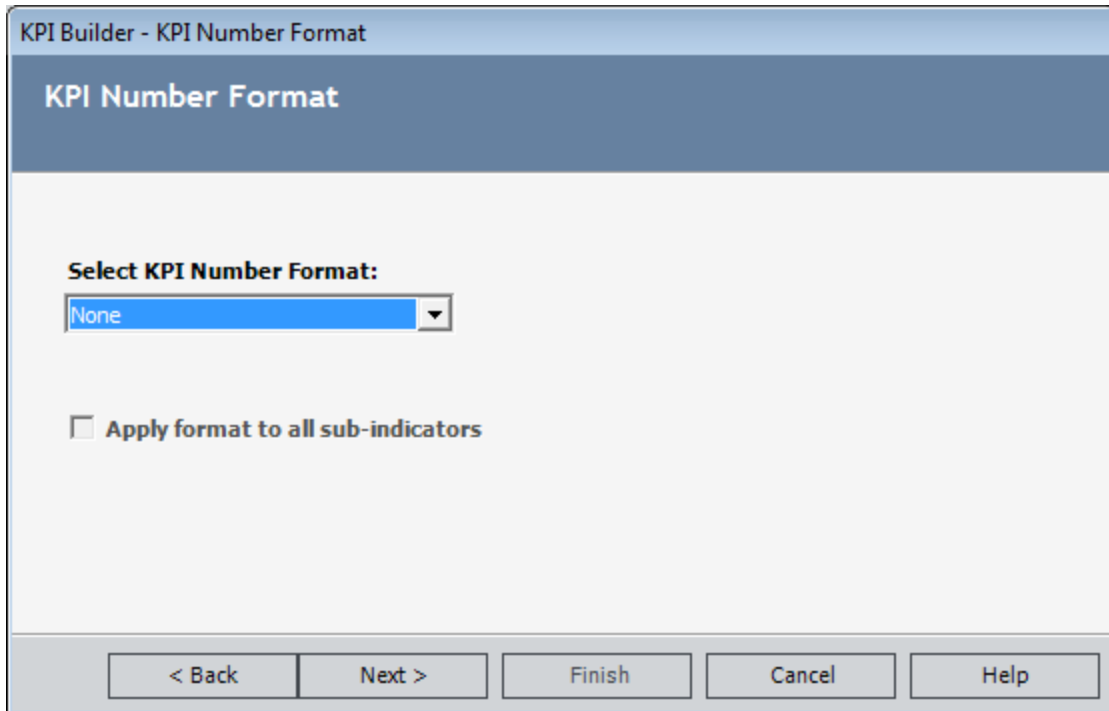
Best Value:

< Back Next > Finish Cancel Help

20. Specify limiting values for the KPI measurement. Supply values for each of the fields:
 - **Worst Value:** The value that should be strictly avoided.
 - **Critical Value:** The value that will indicate that the KPI is not reaching its potential target. If an aggregation function was selected for that field, enter a value of zero.
 - **Target Value:** A quantitative measurement of a performance metric that is to be achieved by a given time. If an aggregation function was selected for that field, enter a value of zero.
 - **Stretch Target:** A much higher quantitative value than a target value, demanding breakthrough performance for achievement. If an aggregation function was selected for that field, enter a value of zero.
 - **Best Value:** The optimal output level.

21. Click the **Next** button.

The **KPI Number Format** screen appears.



22. [Select the desired format for numeric values in the KPI.](#)

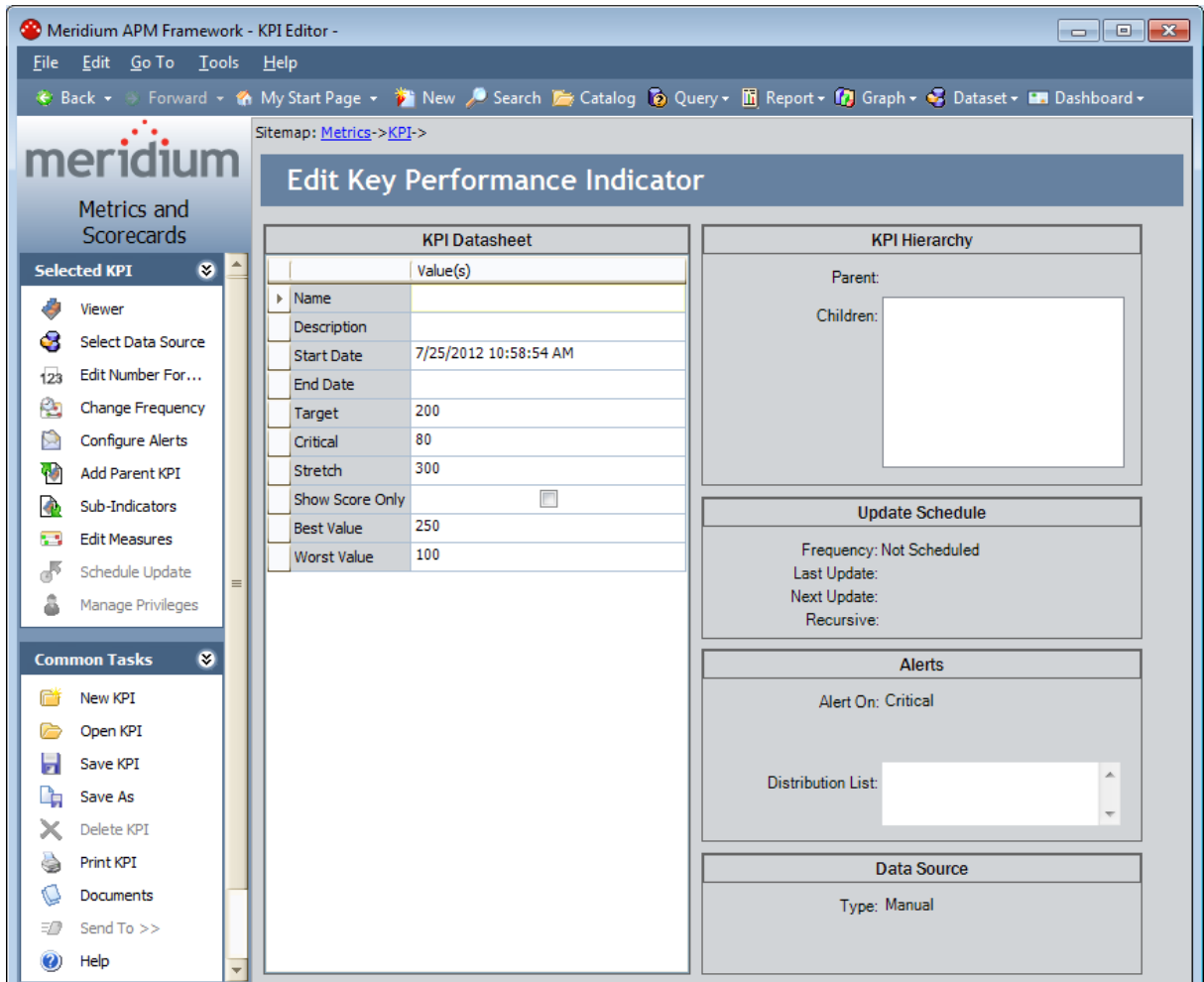
23. Click the **Next** button.

The **New Wizard Page** appears.



24. Click the **Finish** button to finalize the creation of the KPI.

The **KPI Editor** page appears.

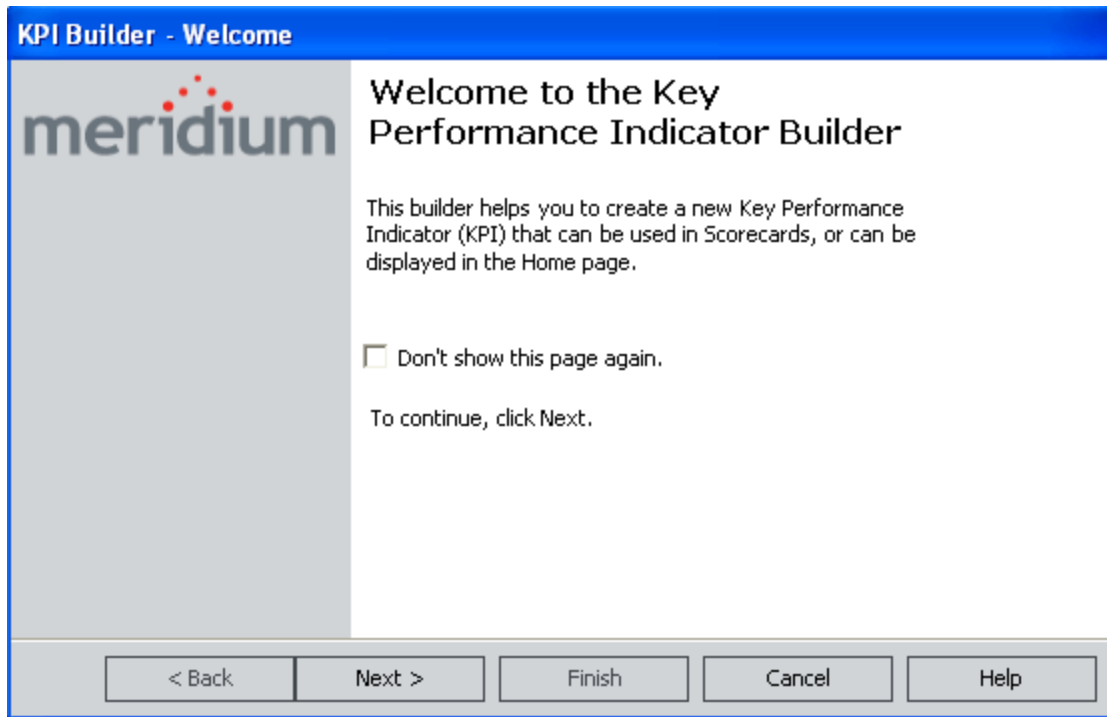


Creating a KPI Based on An Analysis Services Query

To create a new KPI from an Analysis Services query:

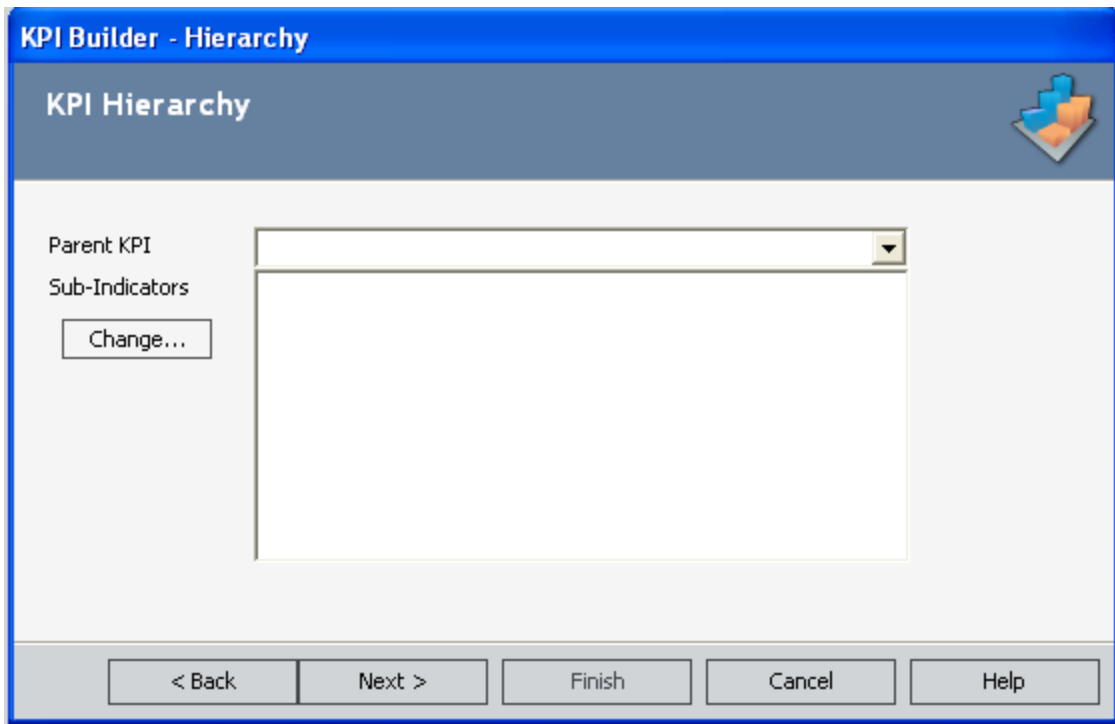
1. On the [Key Performance Indicators page](#), on the **Common Tasks** menu, click the **New KPI** link.

The **KPI Builder** appears, displaying the **Welcome** screen.



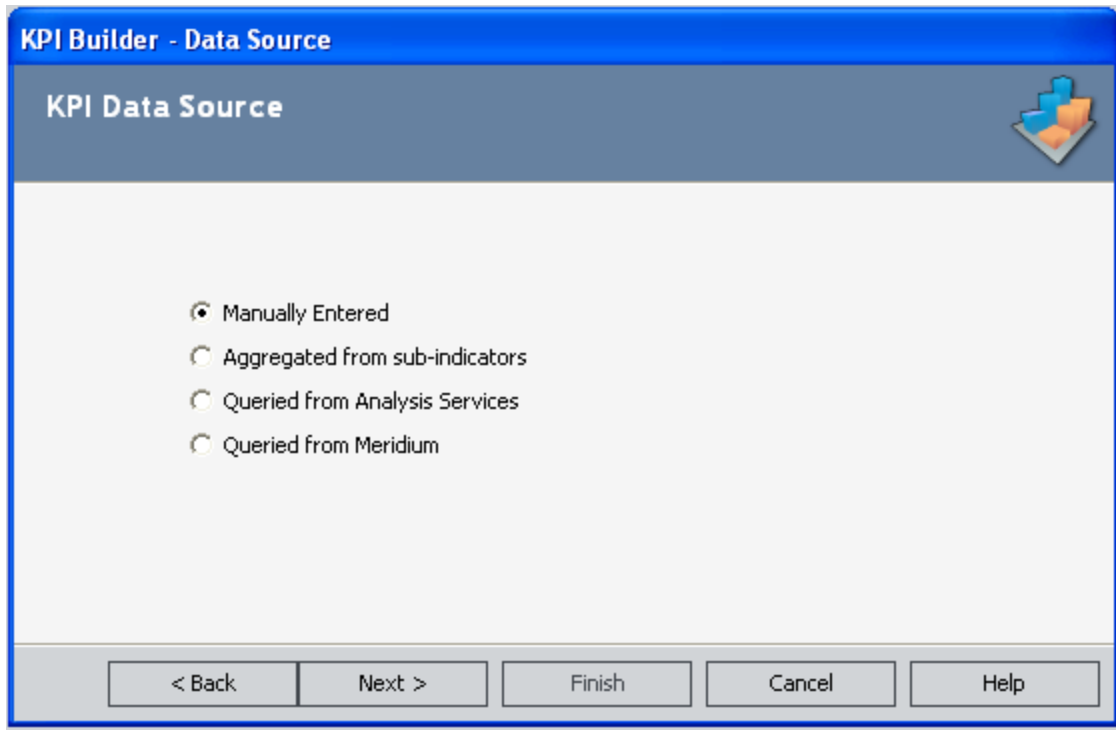
2. Click the **Next** button.

The **Hierarchy** screen appears.



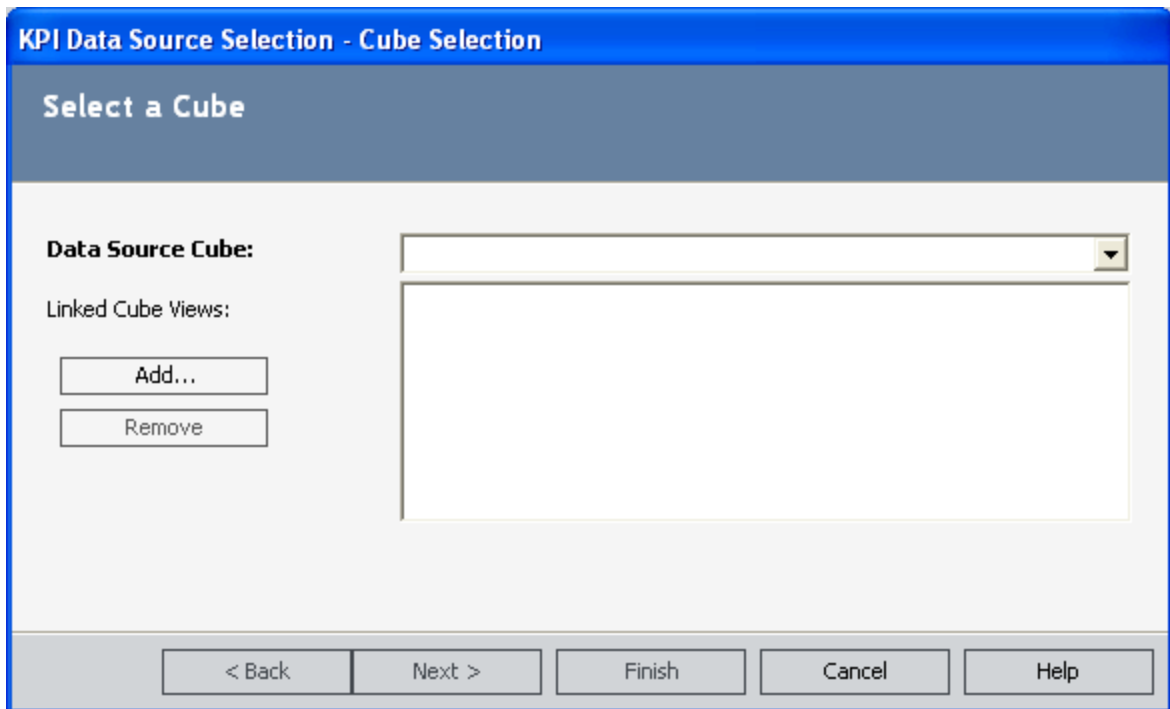
3. If the KPI should function as a sub-indicator for another KPI, in the **Parent KPI** list, select the parent KPI for which this KPI will be a sub-indicator.
4. If this KPI will serve as a parent KPI with sub-indicators, click the **Change** button, and then select the desired sub-indicators.
5. Click the **Next** button.

The **Data Source** screen appears.



6. Select the **Queried from Analysis Services** option, and then click the **Next** button.

The **KPI Data Source Selection** builder appears, displaying the **Cube Selection** screen.

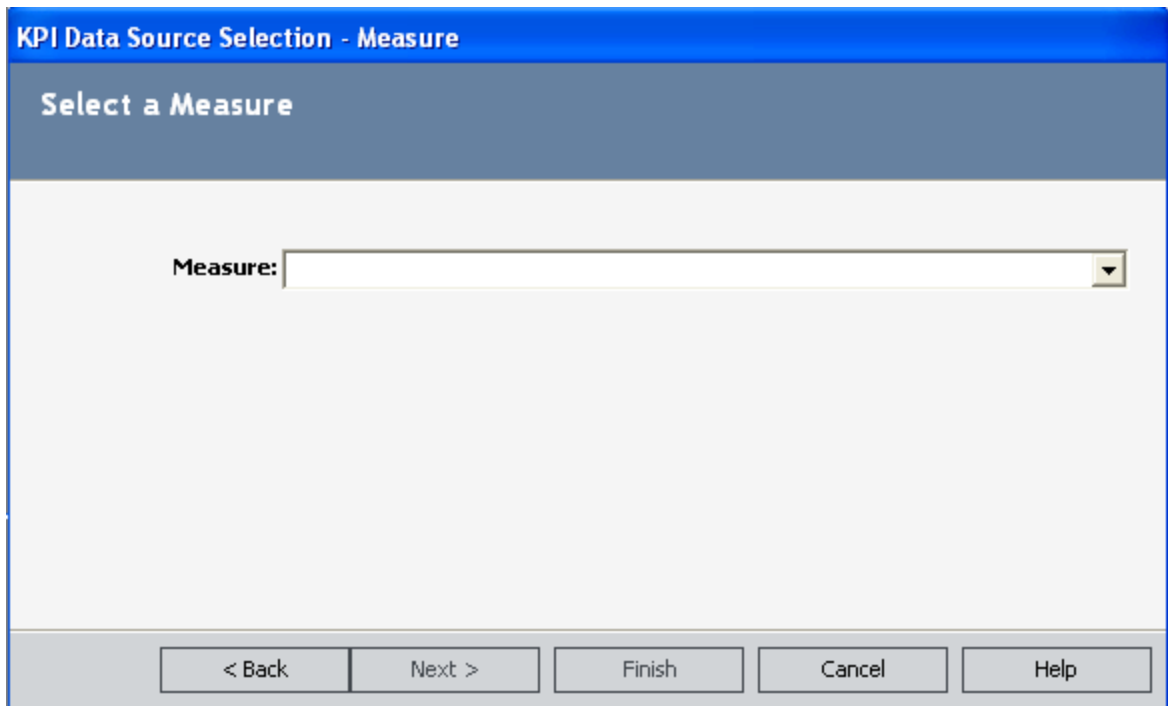


7. In the **Data Source Cube** list, select a cube that contains the data that will be used to update the KPI measurements.
8. If you want to link Metric Views to the KPI, click the **Add** button, navigate through the Catalog, select the desired Metric View, and then click the **Open** button.

Note: If you want to remove a Metric View from the list, select the View in the **Linked Cube Views** list, and click the **Remove** button.

9. Click the **Next** button.

The **Measure** screen appears.



The screenshot shows a dialog box titled "KPI Data Source Selection - Measure". The main area of the dialog is titled "Select a Measure" and contains a single dropdown menu labeled "Measure:". The dropdown menu is currently empty. At the bottom of the dialog, there is a row of five buttons: "< Back", "Next >", "Finish", "Cancel", and "Help".

10. Select the measure used to calculate the actual value for the KPI. The actual value is the current value.
11. Click the **Next** button.

The **Time Dimension** screen appears.

KPI Data Source Selection - Time Dimension

Select the Time Dimension

Time Dimension:

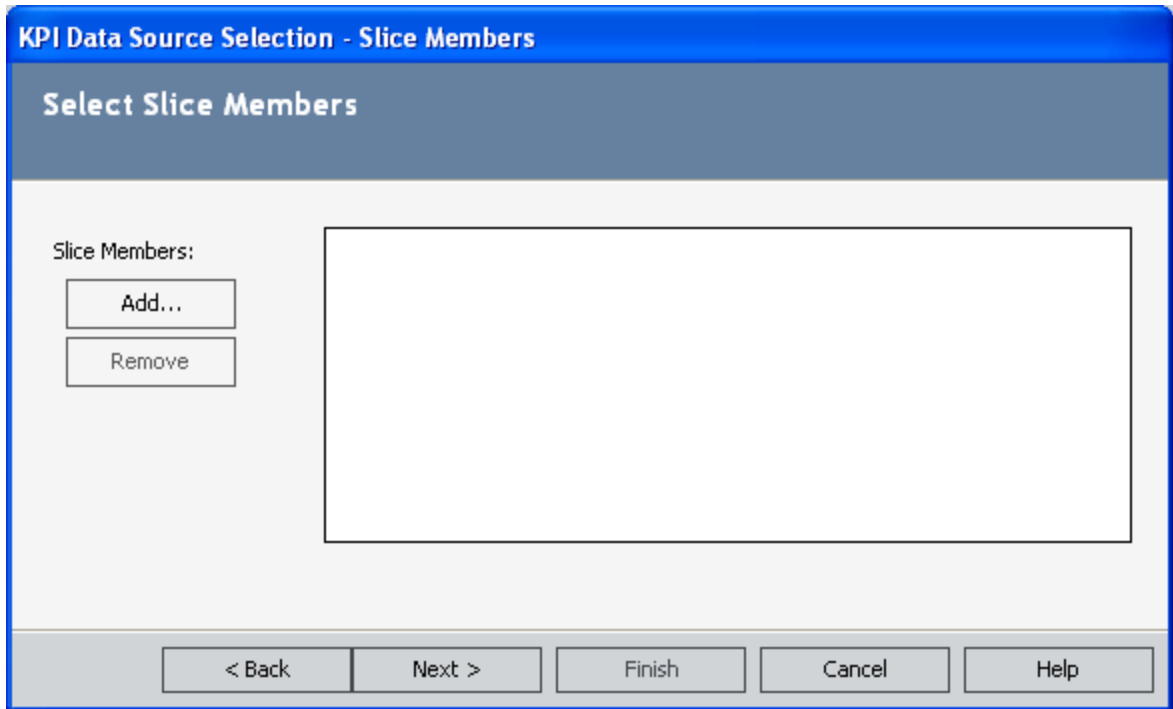
Time Level:

< Back Next > Finish Cancel Help

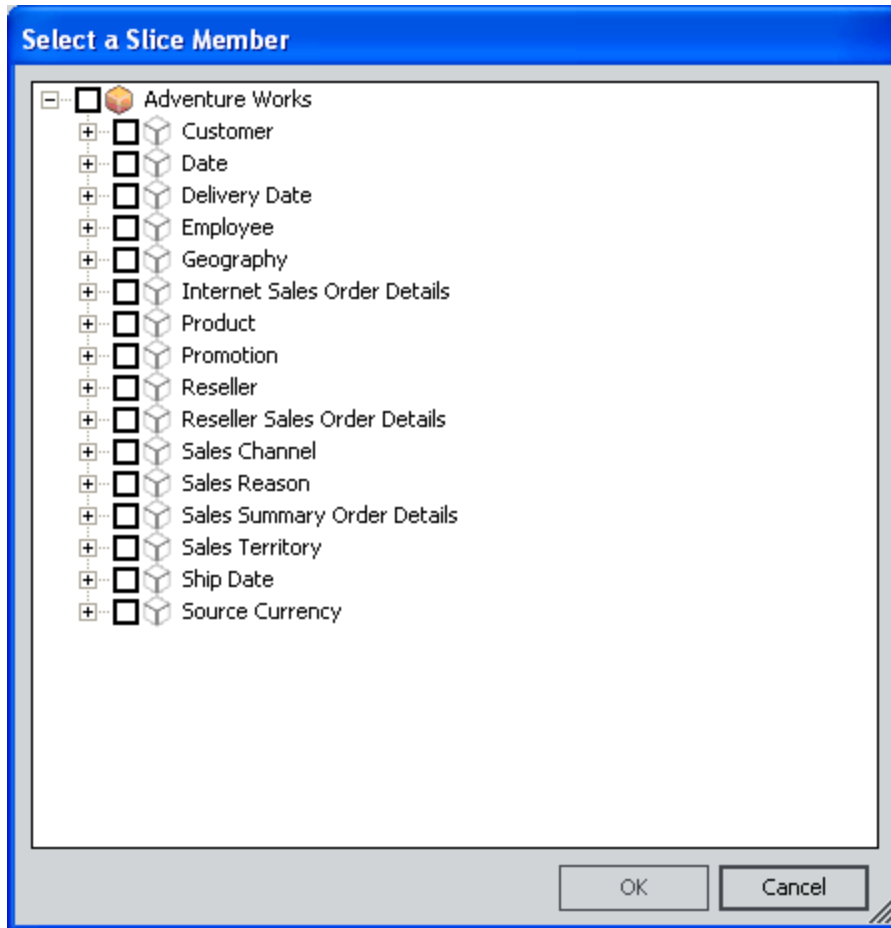
12. In the **Time Dimension** list, select the desired dimension.
13. In the **Time Level** list, select the desired hierarchy level.

Hint: When you highlight a hierarchy level, a tooltip will appear, displaying the unique member name of the time level to distinguish it from other hierarchy levels in the list.


14. Click the **Next** button.
The **Slice Members** screen appears.



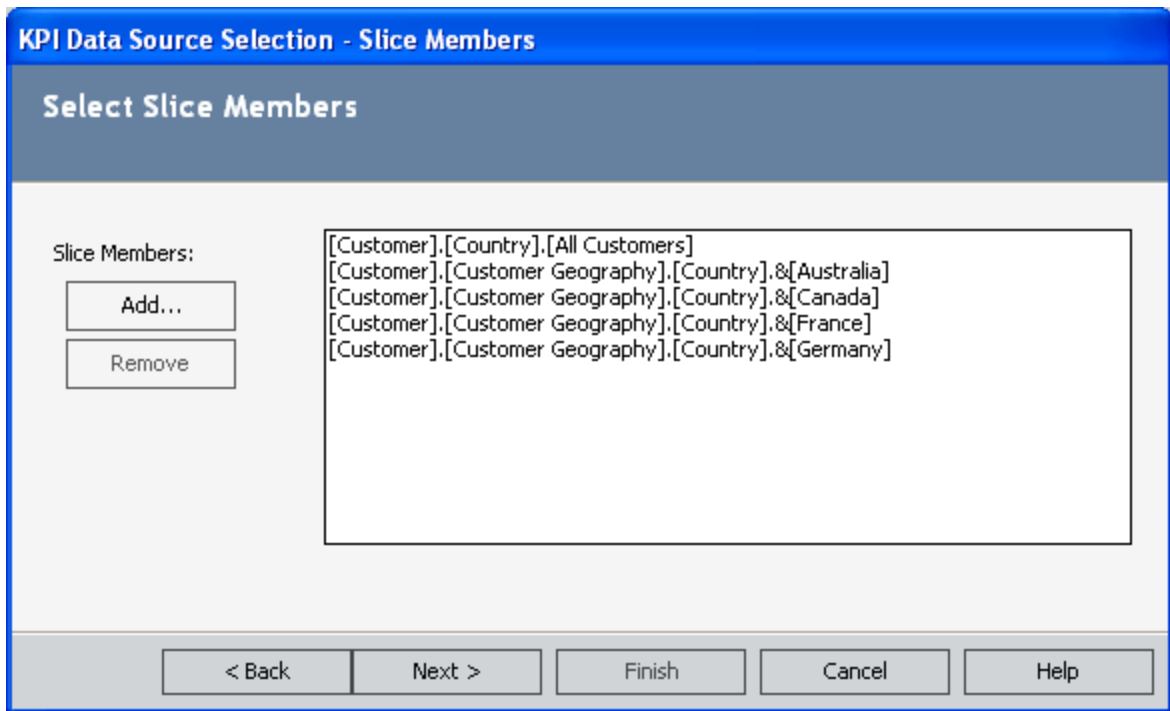
15. If you want to add slice members to reduce the scope of the measure, follow steps 16-17. If you do not want to add slice members, proceed to step 18.
16. On the **Slice Members** screen, click the **Add** button.
The **Select a Slice Member** dialog box appears.



17. Expand the tree, select the desired slice members, and then click **OK**.

Note: Only elements with the  icon to the left of the label can be selected.

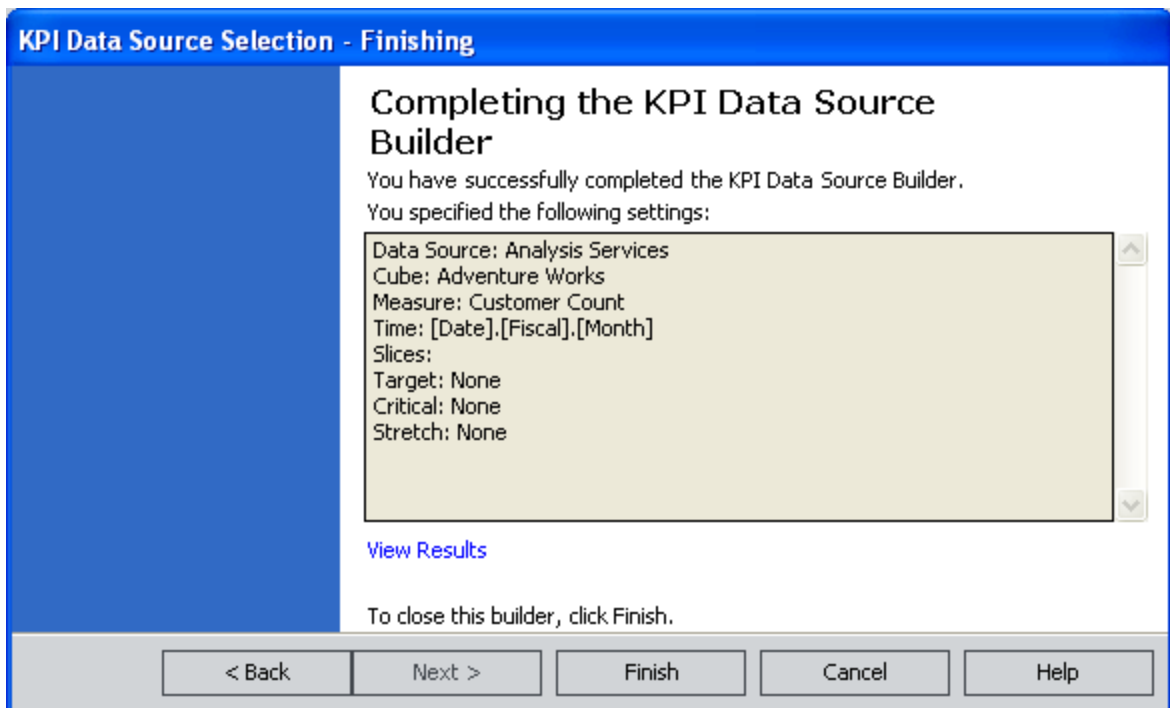
The selected slice members appear on the **Slice Members** screen.



Note: To remove a slice, select the slice in the **Slice Members** list and click the **Remove** button.

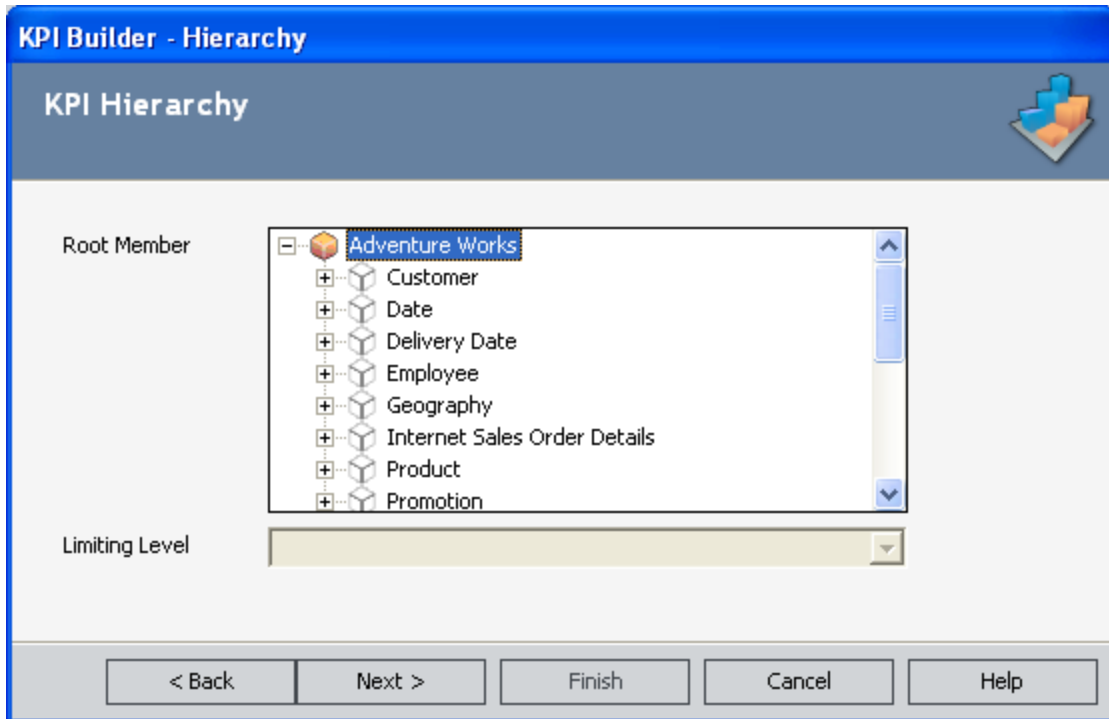
18. Click the **Next** button.

The **Finishing** screen appears, displaying a summary of the data source settings.



19. Click the **Finish** button.

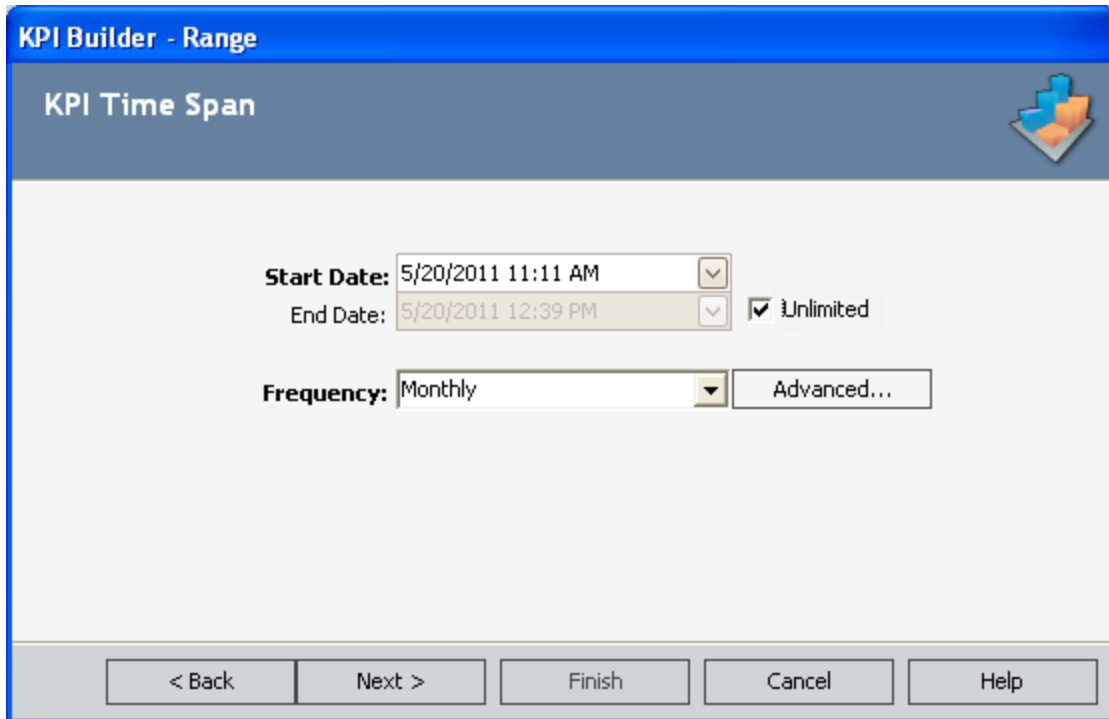
The **KPI Builder** appears, displaying the **Hierarchy** screen.



20. Select the Cube member for which the KPI will be created.

21. Click the **Next** button.

The **Range** screen appears.



22. Select the collection time for the measurement. This represents the time period in which the measurement takes place. The start date and end date should be selected from the **Start Date** and **End Date** drop-down boxes, respectively.

Note: An End Date is optional, as you can continuously track the KPI measures collection. You can select the **Unlimited** check box if you do not want to specify a final date.

23. Click the **Next** button.
The **Specify Limits** screen appears.

KPI Builder - Specify Limits

Specify Limits for the KPI

Worst Value:

Critical Value:

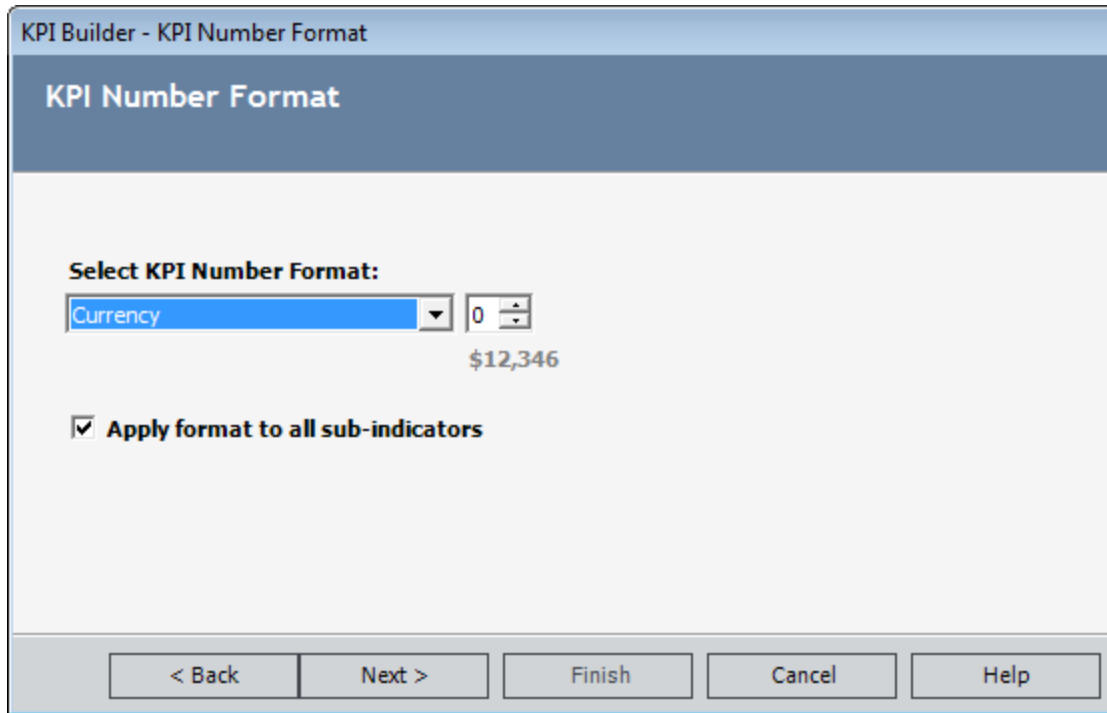
Target Value:

Stretch Value:

Best Value:

< Back Next > Finish Cancel Help

24. Specify limiting values for the KPI measurement. Supply values for each of the fields:
- **Worst Value:** The value that should be strictly avoided.
 - **Critical Value:** A value that indicates that KPI is not reaching its potential target. If an aggregation function was selected for that field, enter a value of zero.
 - **Target Value:** The value that will be your aim for the KPI measurement. A target is a quantitative measurement of a performance metric that is to be achieved by a given time. If an aggregation function was selected for that field, enter a value of zero.
 - **Stretch Target:** A much higher quantitative value than a target value, demanding breakthrough performance for achievement. If an aggregation function was selected for that field, enter a value of zero.
 - **Best Value:** The optimal output level.
25. Click the **Next** button.
- The **KPI Number Format** screen appears.



26. [Select the desired format for numeric values in the KPI.](#)

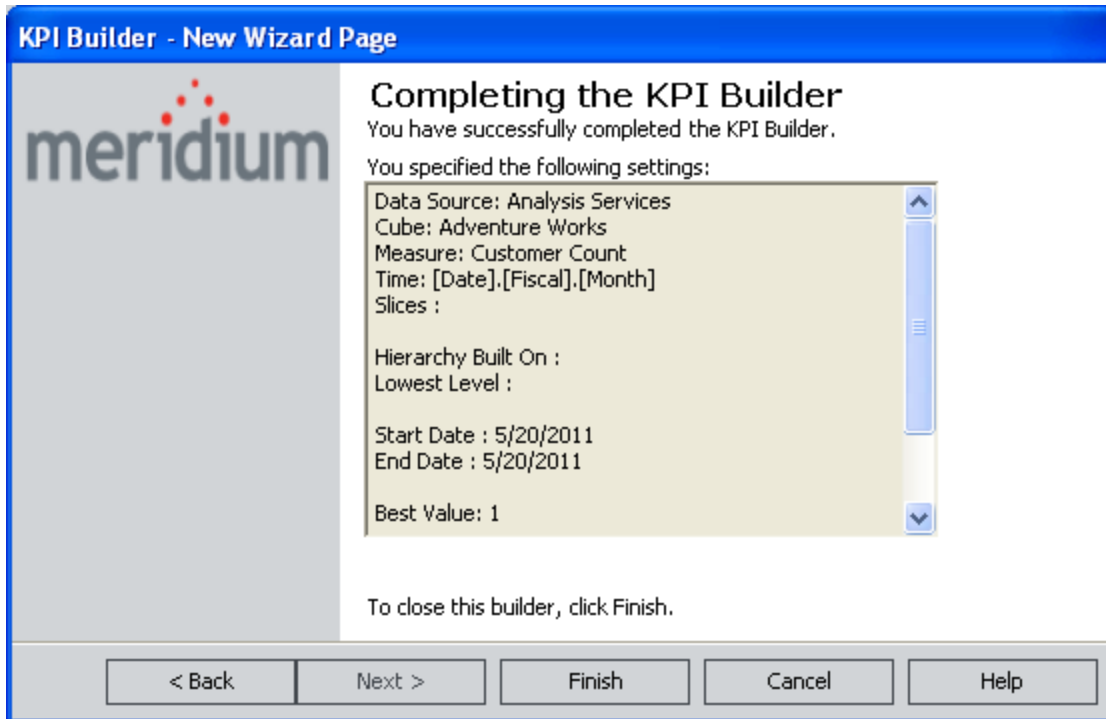
Note: If the FormatString value for the cube in Analysis Services is Currency, Percent, or a custom format, that number format will appear in the **Select KPI Number Format** list by default. Otherwise, the number format will be set by default to *None*. You can accept the default value or modify it if desired.

27. If you do not want the selected number format to be applied to sub-indicators, *clear* the **Apply format to all sub-indicators** check box.

Note: This check box is enabled and selected by default if sub-indicators will be created for the KPI, based upon the selections that you made on the **Hierarchy** screen. If sub-indicators will not be created for the KPI, this check box is disabled.

28. Click the **Next** button.

The **New Wizard Page** appears.



Note: If you chose to make the End Date unlimited, the End Date appears as 1/1/0001 in the summary.

29. Click the **Finish** button to finalize the creation of the KPI.
The **KPI Editor** page appears.

meridium
Metrics and Scorecards

Selected KPI

- Viewer
- Select Data Source
- Edit Number For...
- Change Frequency
- Configure Alerts
- Add Parent KPI
- Sub-Indicators
- Edit Measures
- Schedule Update
- Manage Privileges

Common Tasks

- New KPI
- Open KPI
- Save KPI
- Save As
- Delete KPI
- Print KPI
- Documents
- Send To >>
- Help

KPI Datasheet

	Value(s)
Name	
Description	
Start Date	7/25/2012 10:58:54 AM
End Date	
Target	200
Critical	80
Stretch	300
Show Score Only	<input type="checkbox"/>
Best Value	250
Worst Value	100

KPI Hierarchy

Parent:

Children:

Update Schedule

Frequency: Not Scheduled
Last Update:
Next Update:
Recursive:

Alerts

Alert On: Critical

Distribution List:

Data Source

Type: Manual

Creating a KPI Using a Meridium APM Query

You can create a query that returns any data that you want to view as a KPI. You can then use the KPI to send alerts when values in the query meet certain conditions. For example, you could create a query that returns all measurement values associated with a Thickness Measurement Location for a Piping Circuit. Your KPI could then [track the measurement values](#) as they are entered into the Meridium APM database. You could [set up an alert](#) such that if a measurement value were to get below the critical value, an email message would be sent to the appropriate management personnel.

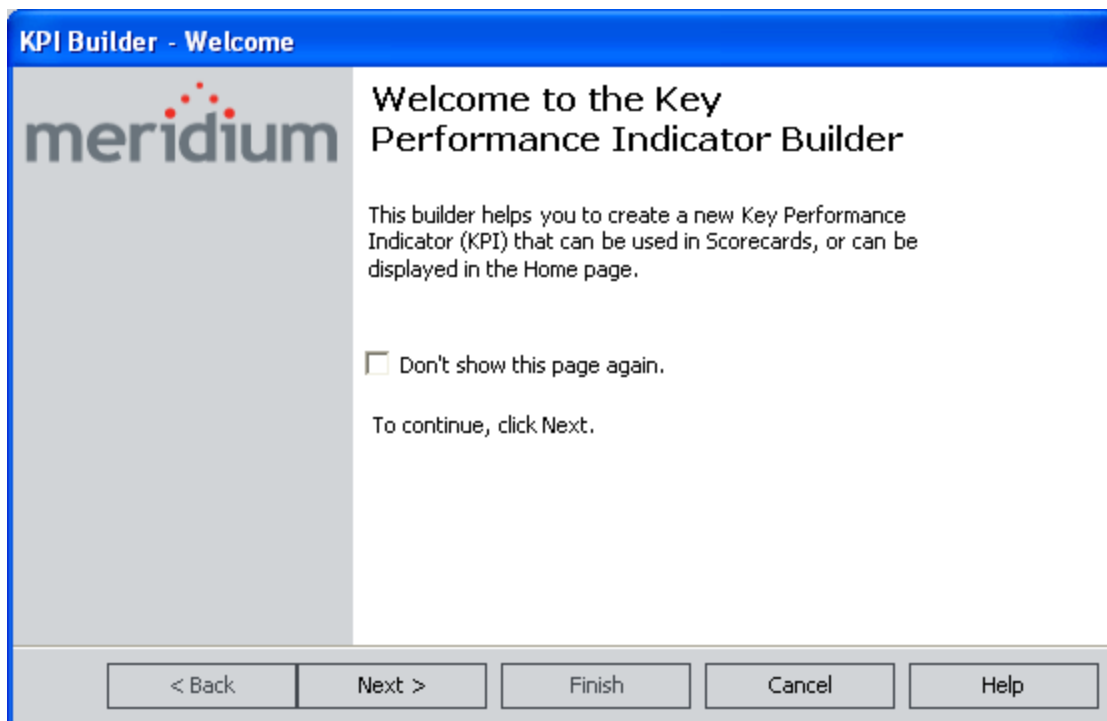
To use a query as the source of a KPI, any field alias that includes spaces must be surrounded with single quotation marks. For example, if the query includes the field **Measurement Taken Date**, the alias for that field should be exactly **'Measurement Taken Date'**.

Note that the following instructions assume that the query has been created and saved in a Catalog folder to which you have at least View permissions. They also assume that you have at least View permissions to any family included in the query.

To create a new KPI using a Meridium APM query:

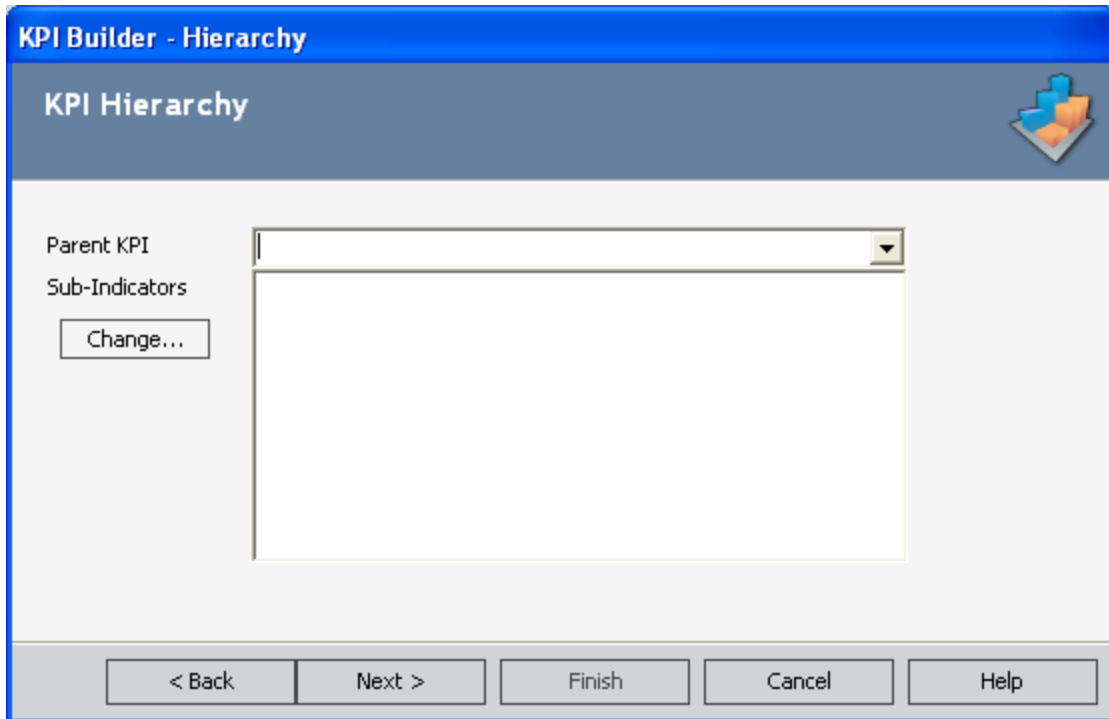
1. On the [Key Performance Indicators page](#), on the **Common Tasks** menu, click the **New KPI** link.

The **KPI Builder** appears, displaying the Welcome screen.



2. Click the **Next** button.

The **Hierarchy** screen appears.

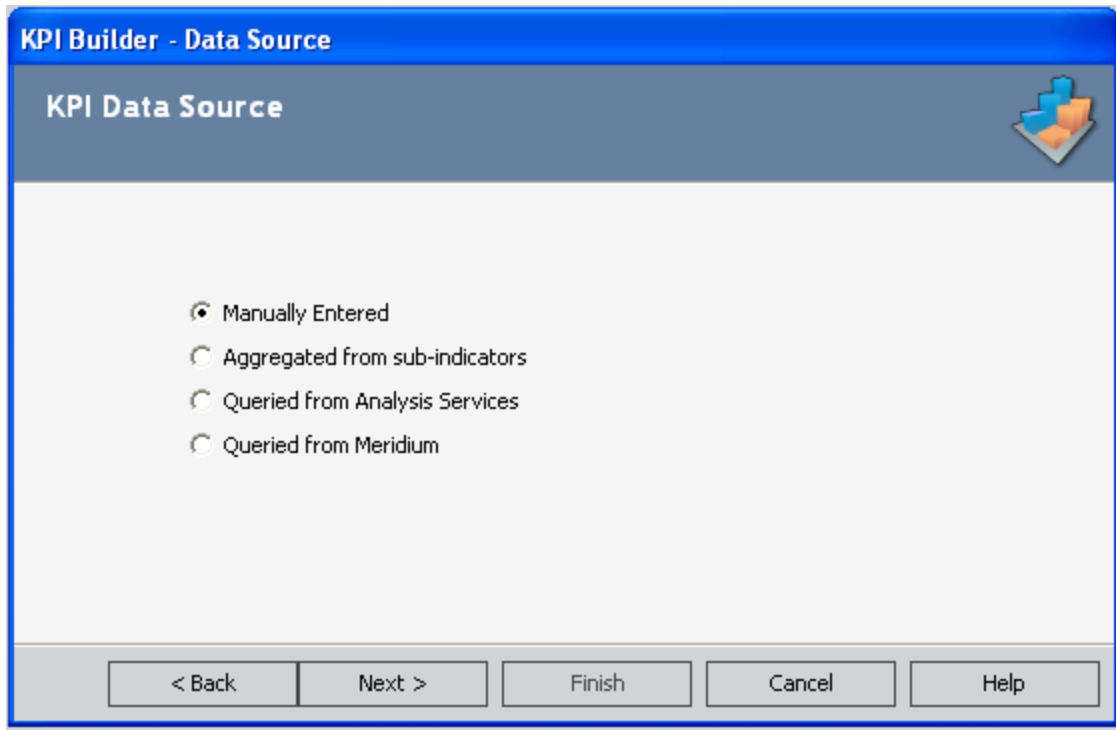


3. If the KPI should function as a sub-indicator for another KPI, in the **Parent KPI** list, select the parent KPI for which this KPI will be a sub-indicator.
4. If this KPI will serve as a parent KPI with sub-indicators, click the **Change** button, and then select the desired sub-indicators.

Note: A sub-indicator is a KPI that provides additional details about the current KPI or is the KPI from which you will pull values using an aggregation function.

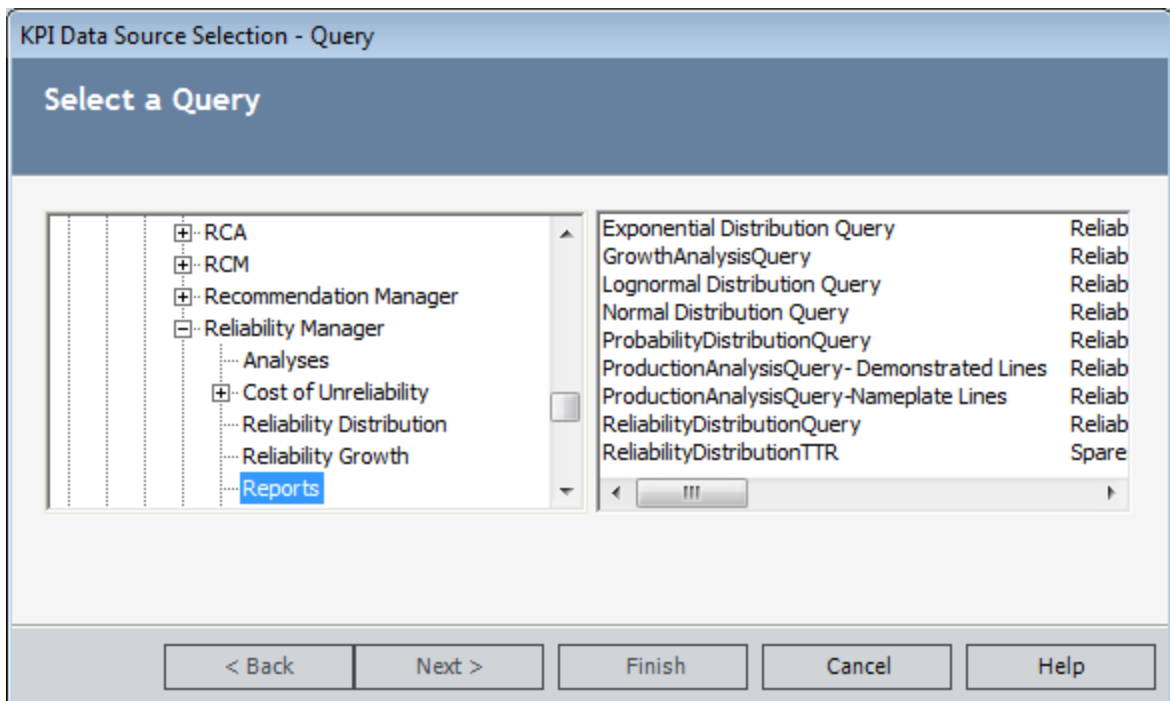
5. Click the **Next** button.

The **Data Source** screen appears.



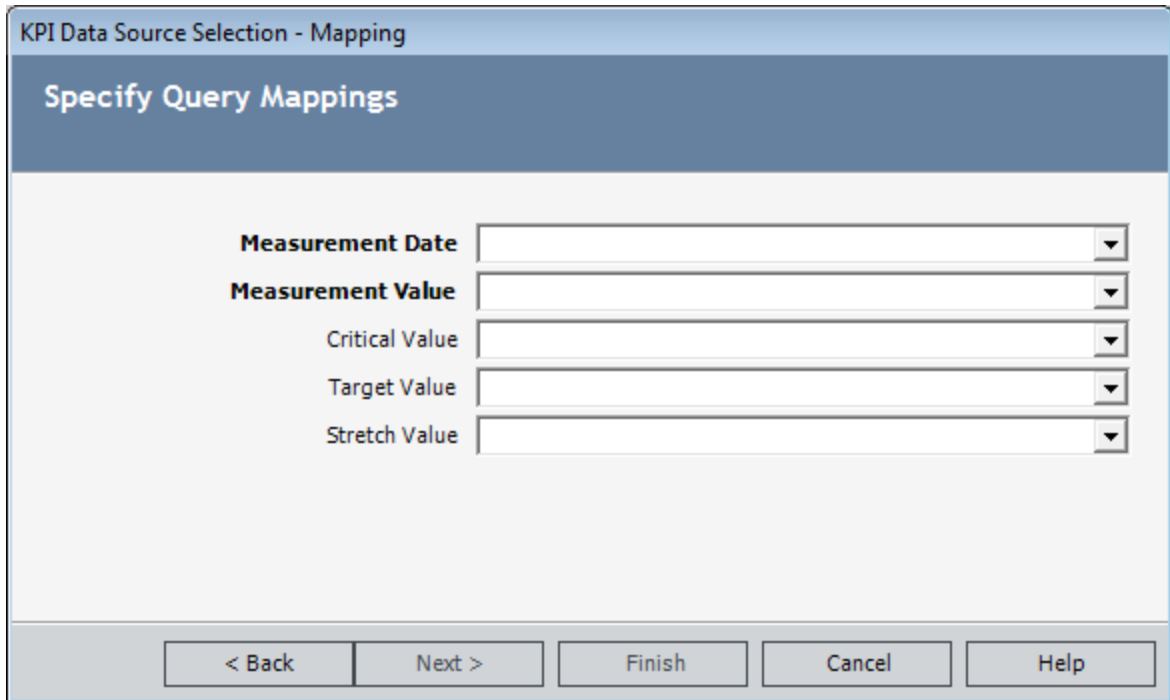
6. Select the **Queried from Meridium** option, and click the **Next** button.

The **KPI Data Source Selection Builder** appears, displaying the **Query** screen.



7. In the hierarchy on the left, which mimics the Meridium APM Catalog structure, select the folder containing the query you want to use to build the KPI.
8. In the area on the right, select the query.
9. Click the **Next** button.

The **KPI Data Source Selection** builder displays the **Mapping** screen.



The screenshot shows a dialog box titled "KPI Data Source Selection - Mapping". The main heading is "Specify Query Mappings". There are five dropdown menus for selection:

- Measurement Date
- Measurement Value
- Critical Value
- Target Value
- Stretch Value

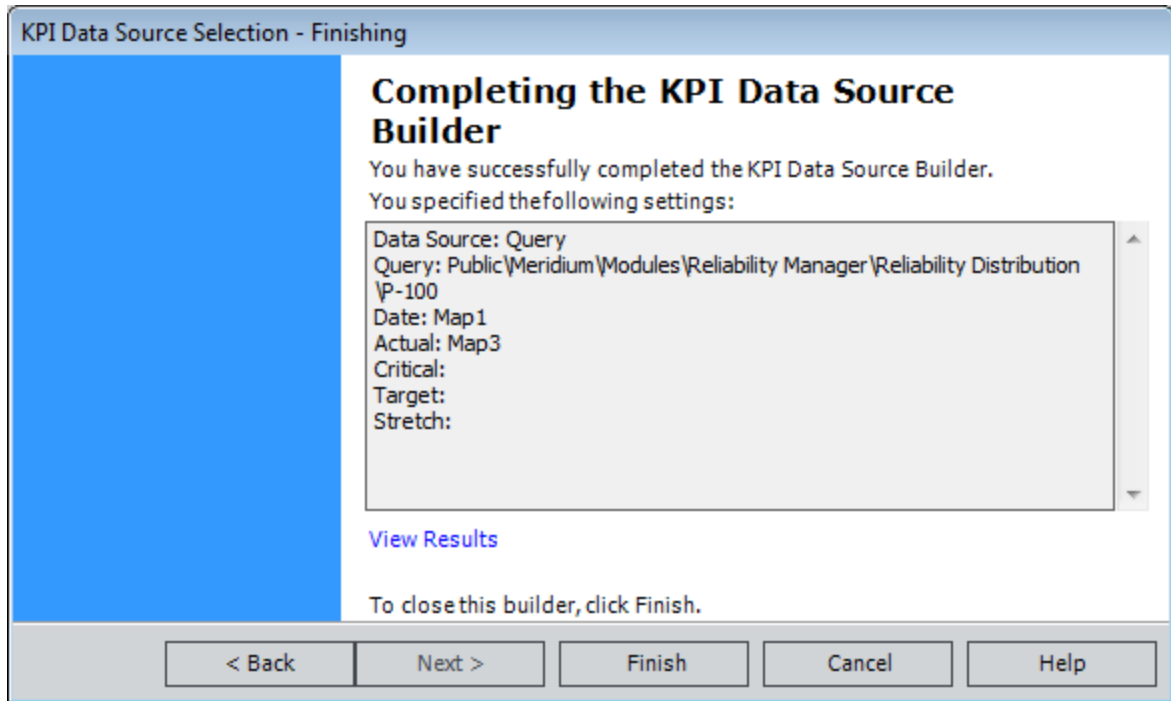
At the bottom of the dialog, there are five buttons: "< Back", "Next >", "Finish", "Cancel", and "Help".

10. In each list, select an appropriate field from the query. For example, in the **Measurement Date** list, you would select a field from the query that represents the measurement date. Note that the **Measurement Date** list contains a list of only Date fields in the query.

The remaining lists contain only Numeric fields from the query. Note that after you select a Numeric field in one of the lists, that field will not be available for selection in the remaining lists.

11. Click the **Next** button.

The **KPI Datasource Selection** builder displays the **Finishing** screen.



12. Review the summary displayed on the **Finishing** screen. If desired, you can click the **View Results** link to view the values in the fields you selected on the previous screen.
13. Click the **Finish** button.

The **KPI Builder** displays the **Range** screen.

KPI Builder - Range

KPI Time Span

Start Date: 12/28/2010 11:42 AM

End Date: 1/1/0001 12:00 AM Unlimited

Frequency: Monthly

< Back Next > Finish Cancel Help

14. Choose the collection time for the measurement. In the **Start Date** field, select the date on which you want to start recording measures. The value is set automatically to the first date returned by the query in the field you selected in the **Measurement Date** list on the **Mapping** screen of the **KPI Datasource Selection** builder.
15. If you want to select a date on which to stop recording measurements, clear the **Unlimited** check box, and select a date in the **End Date** text box. Otherwise, if you do not want to specify a final measurement date, select the **Unlimited** check box.
16. In the **Frequency** list, select the frequency by which you want to take measurements. You can click the **Advanced** button to [specify a frequency other than the default value](#).
17. Click the **Next** button.
The **Specify Limits** screen appears.

KPI Builder - Specify Limits

Specify Limits for the KPI

Worst Value:

Critical Value:

Target Value:

Stretch Value:

Best Value:

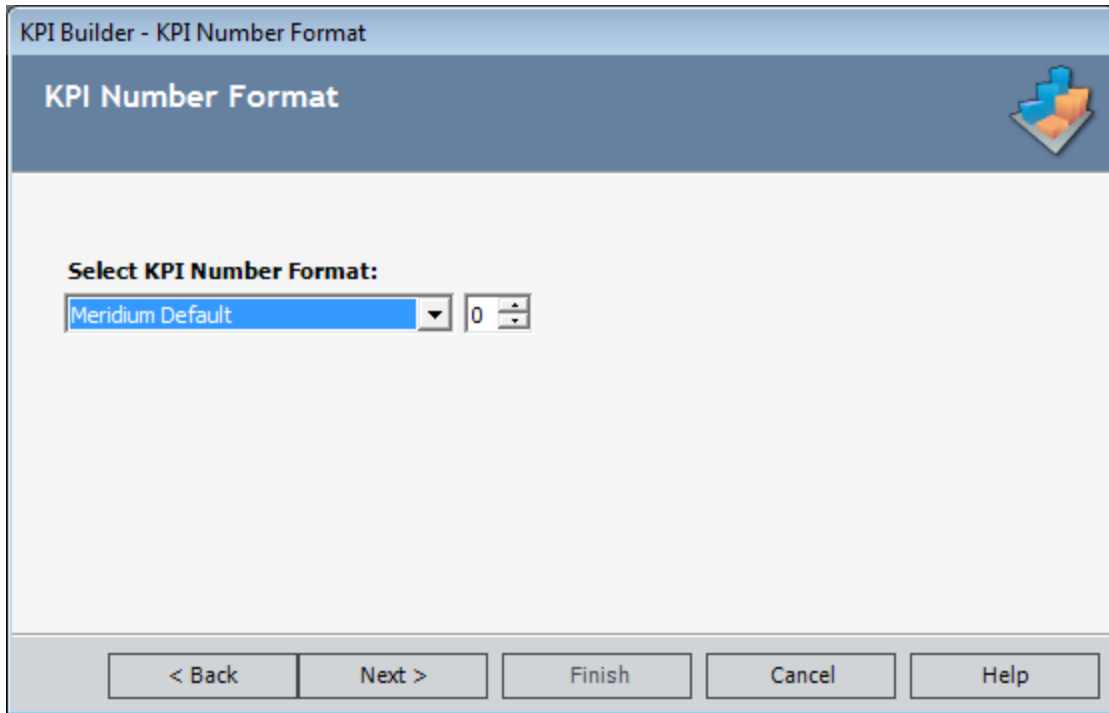
< Back Next > Finish Cancel Help

18. Supply values for each of the following fields:

- **Worst Value:** The value that should be strictly avoided.
- **Critical Value:** Indicates that the KPI is not reaching its potential target.
- **Target Value:** The value that will be your aim for the KPI measurement. A target is a quantitative measurement of a performance metric that is to be achieved by a given time.
- **Stretch Target:** Has a much higher quantitative value than a target value, demanding breakthrough performance for achievement.
- **Best Value:** The optimal output level.

19. Click the **Next** button.

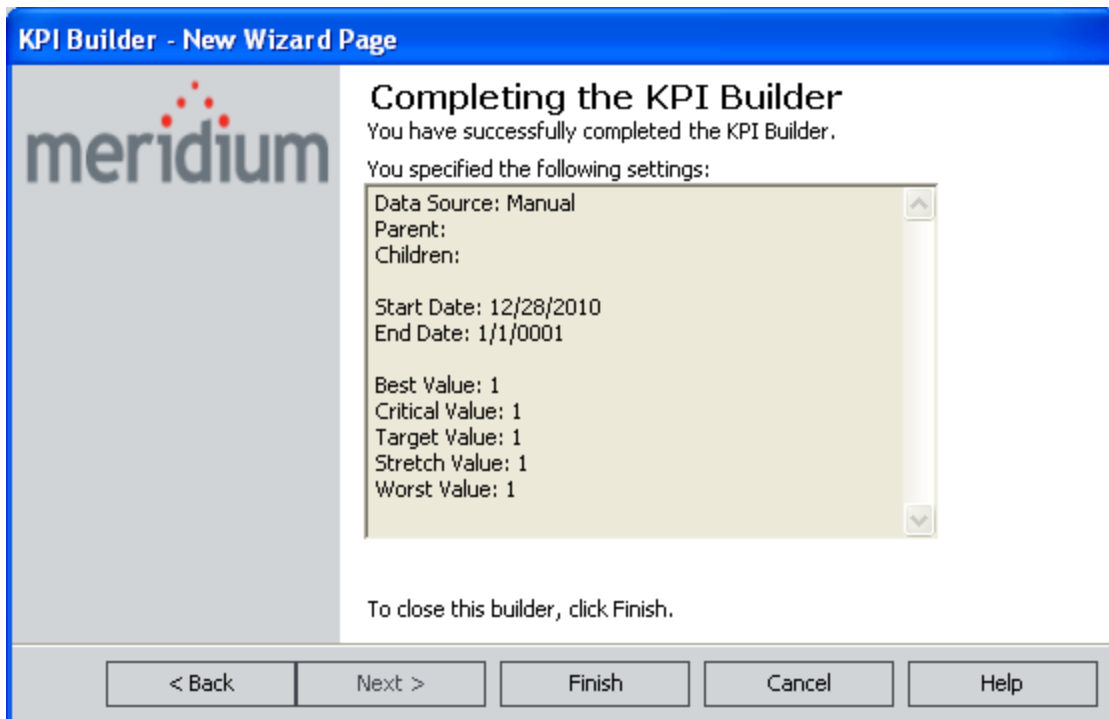
The **KPI Number Format** screen appears.



20. [Select the desired format for numeric values in the KPI.](#)

21. Click the **Next** button.

The **New Wizard Page** appears.



Note: If you chose to make the End Date unlimited, the End Date appears as 1/1/0001 in the summary.

22. Review the summary information. If you are satisfied with the selections you have made, click the **Finish** button. If desired, you can modify the information by using the **Back** button to navigate to the screen on which you want to modify a value.

The **KPI Editor** page appears, displaying the new KPI.

Meridium APM Framework - KPI Editor -

File Edit Go To Tools Help

Back Forward My Start Page New Search Catalog Query Report Graph Dataset Dashboard

Sitemap: Metrics->KPI->

Edit Key Performance Indicator

KPI Datasheet	
	Value(s)
Name	
Description	
Start Date	7/25/2012 10:58:54 AM
End Date	
Target	200
Critical	80
Stretch	300
Show Score Only	<input type="checkbox"/>
Best Value	250
Worst Value	100

KPI Hierarchy

Parent:

Children:

Update Schedule

Frequency: Not Scheduled
 Last Update:
 Next Update:
 Recursive:

Alerts

Alert On: Critical

Distribution List:

Data Source

Type: Manual

Selected KPI

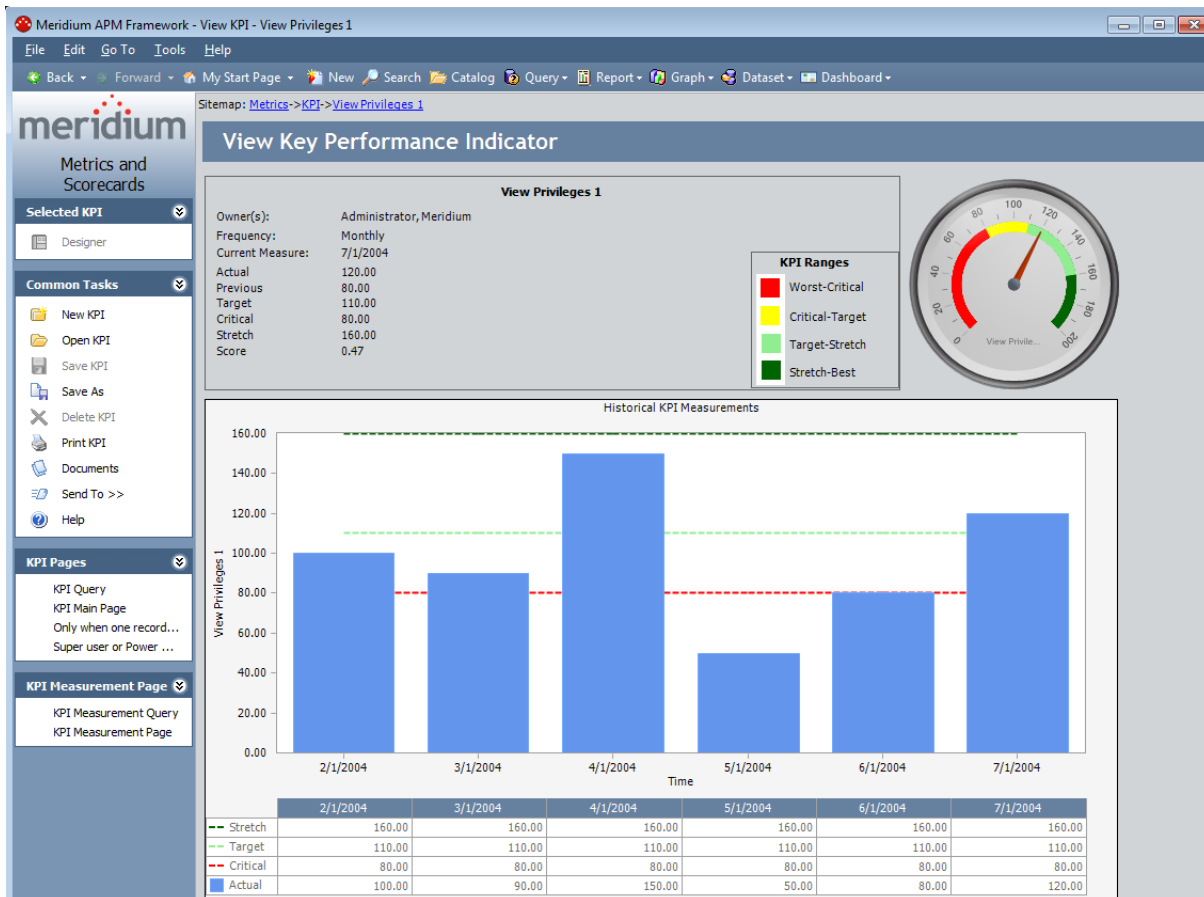
- Viewer
- Select Data Source
- Edit Number For...
- Change Frequency
- Configure Alerts
- Add Parent KPI
- Sub-Indicators
- Edit Measures
- Schedule Update
- Manage Privileges

Common Tasks

- New KPI
- Open KPI
- Save KPI
- Save As
- Delete KPI
- Print KPI
- Documents
- Send To >>
- Help

Overview of the View KPI Page

The **View KPI** page displays the values that have been recorded for the KPI, indicates where the values fall within the defined limits, and shows how the values have changed over time.



The **View KPI** page is divided into four areas: [KPI Details](#), [Dial](#), [Trend Chart](#), and [Trend Data](#). The page also contains the following task menus, which you can use to perform various tasks related to the KPI: [Selected KPI Menu](#), [Common Tasks Menu](#), [KPI Pages Menu](#), [KPI Measurement Pages Menu](#).

KPI Details

The KPI Details section appears on the upper left portion of the **View KPI** page.

View Privileges 1	
Owner(s):	Administrator, Meridium
Frequency:	Monthly
Current Measure:	7/1/2004
Actual	120.00
Previous	80.00
Target	110.00
Critical	80.00
Stretch	160.00
Score	0.47

KPI Ranges

- Worst-Critical
- Critical-Target
- Target-Stretch
- Stretch-Best

The KPI Details section displays the following information:

- **Owner(s):** The person(s) who hold update privileges for the KPI.
- **Frequency:** The frequency by which the KPI is measured. This can be daily, weekly, monthly, or yearly.
- **Current Measure:** The date of the currently displayed measurement.
- **Actual:** The value of the current measurement.
- **Target:** The value that will be your aim for the KPI measurement. A target is a quantitative measurement of a performance metric that is to be achieved by a given time.
- **Critical:** The value that indicates that the KPI has reached a very low performance level.
- **Stretch:** The value that is achieved by breakthrough performance.
- **Score:** A normalized value between 0.0 and 1.0 representing the relative strength of the Actual Value.

Dial

The dial indicates the level of success for the organizational performance.



The colors on the dial indicate the following values, which are represented in the **KPI Ranges** box:

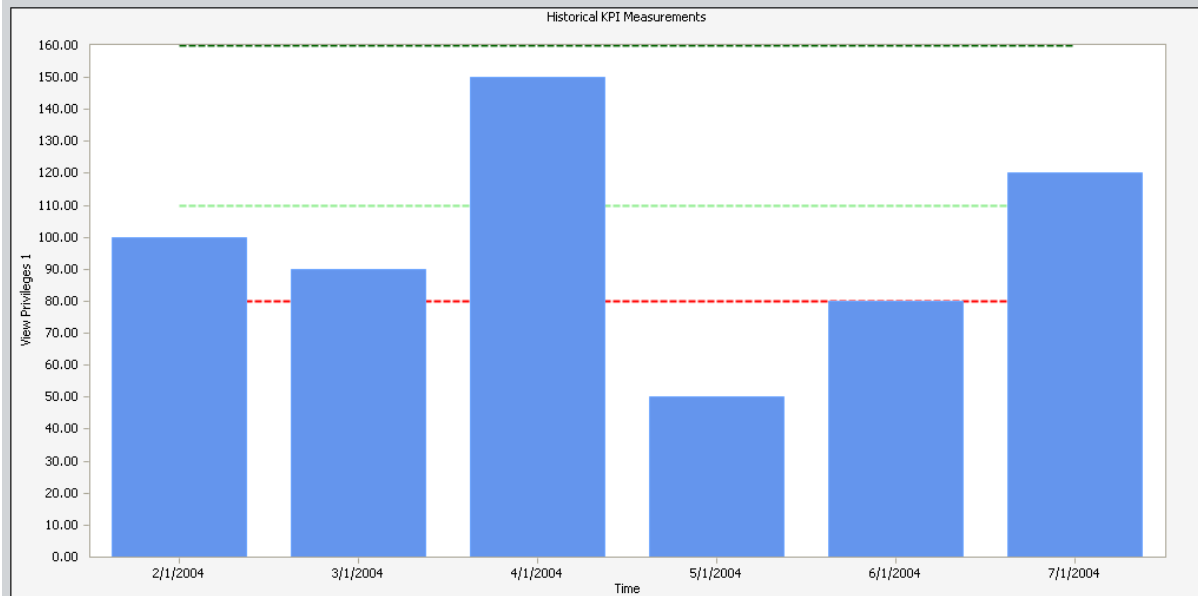
- **Red:** Below critical.
- **Yellow:** Between target and critical.
- **Light Green:** Between target and stretch.
- **Dark Green:** Above stretch.


As you click the bars on the trend chart, the dial will change to provide a visual indication of where each value falls within the determined ranges.

If any value on the dial is at least 10,000, all values on the dial will be scaled, and the dial will be labeled with the measured unit (e.g., thousands).

Trend Chart

The trend chart displays the KPI results in a graphical format for a set period of time, such as month to month.



 **Note:** If the time frame for the KPI measurements exceeds the amount of data that can be displayed in the graph window, use the scroll bar at the bottom of the graph to view the values outside of the window view.

As you click the bars on the trend chart, the dial on the dashboard will change to provide a visual indication of where each value falls within the determined ranges.

Trend Data

On the **View KPI** page, trend data is displayed in textual format below the trend chart.

	2/1/2004	3/1/2004	4/1/2004	5/1/2004	6/1/2004	7/1/2004
--- Stretch	160.00	160.00	160.00	160.00	160.00	160.00
--- Target	110.00	110.00	110.00	110.00	110.00	110.00
--- Critical	80.00	80.00	80.00	80.00	80.00	80.00
■ Actual	100.00	90.00	150.00	50.00	80.00	120.00

You can use this data to interpret the trend chart. You cannot modify this data via the **View KPI** page.

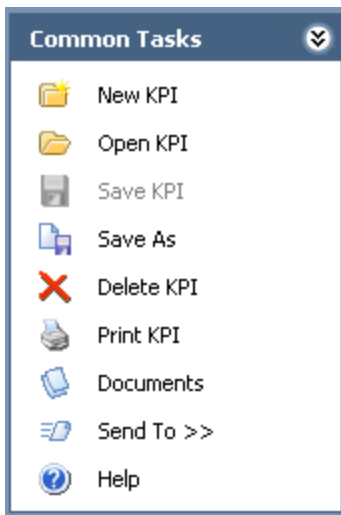
Selected KPI Menu



The **Selected KPI** menu on the **View KPI** page contains the following link:

- **Designer:** Displays the KPI on the **KPI Editor** page, where you can manually add data or modify the existing data. This link is disabled if you do not have Update privileges to the KPI family.

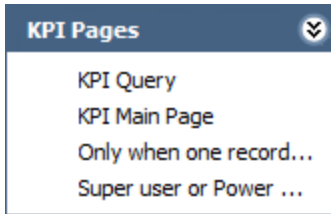
Common Tasks Menu



The **Common Tasks** menu on the **View KPI** page contains the following links:

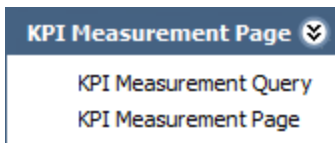
- **New KPI:** Opens the **KPI Builder**, where you can [create a KPI record](#).
- **Open KPI:** Displays the **Key Performance Indicators** page, from which you can open an existing KPI record.
- **Save KPI:** This link is disabled on the **View KPI** page.
- **Save As:** Displays the **Save As** dialog box, where you can save the current KPI record with a different name or in a new location.
- **Delete KPI:** Displays a confirmation message and then, [deletes the current KPI](#). If you are creating a new KPI record, this link is disabled until you save the KPI record. This link is also disabled if you do not have Delete privileges to the KPI family.
- **Print KPI:** Displays the **Print** dialog box, where you can print the KPI.
- **Documents:** Displays the reference documents associated with the KPI record. If you are creating a new KPI record, this link is disabled until you save the KPI record.
- **Send To:** Displays a submenu with options that let you provide a link to the current page on your desktop (create shortcut), in an email message, or on a Home Page. If you are creating a new KPI record, this link is disabled until you save the KPI record.
- **Help:** Displays the context-sensitive Help topic for the **View KPI** page.

KPI Pages Menu



The **KPI Pages** menu on the **View KPI** page contains the Associated Pages that have been configured for the KPI family.

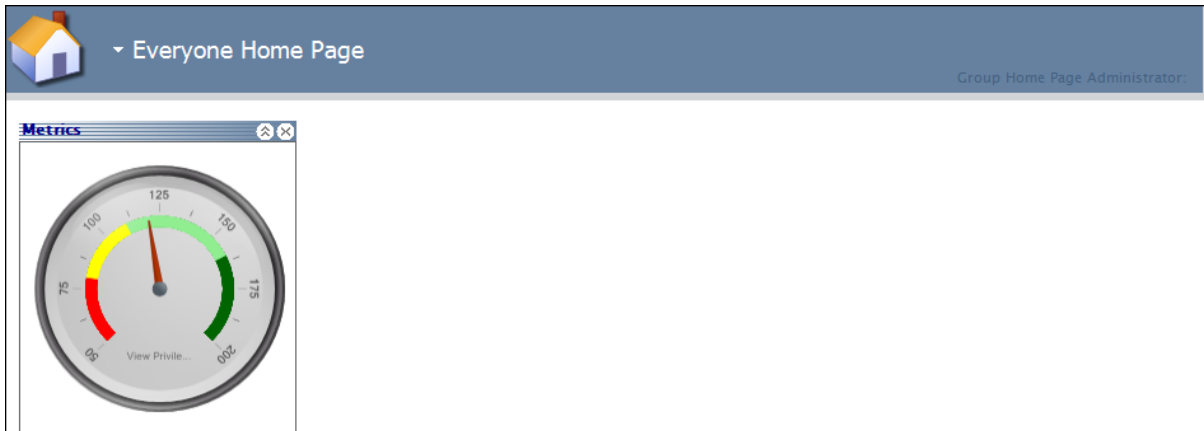
KPI Measurement Pages Menu



The **KPI Measurement Pages** menu on the **View KPI** page displays the Associated Pages that have been configured for the KPI Measurement family.

Sending KPI Images to a Home Page

The standard Send To feature lets you send a link to a page in the Meridium APM Framework to personal or group Home Pages. The View KPI page provides the standard Send To options via the **Send To** link on the **Common Tasks** menu. In addition to the standard options, from the View KPI page, you can send an actual image from the KPI to a Home Page. For example, the following image shows a KPI dial that has been sent to a Home Page.



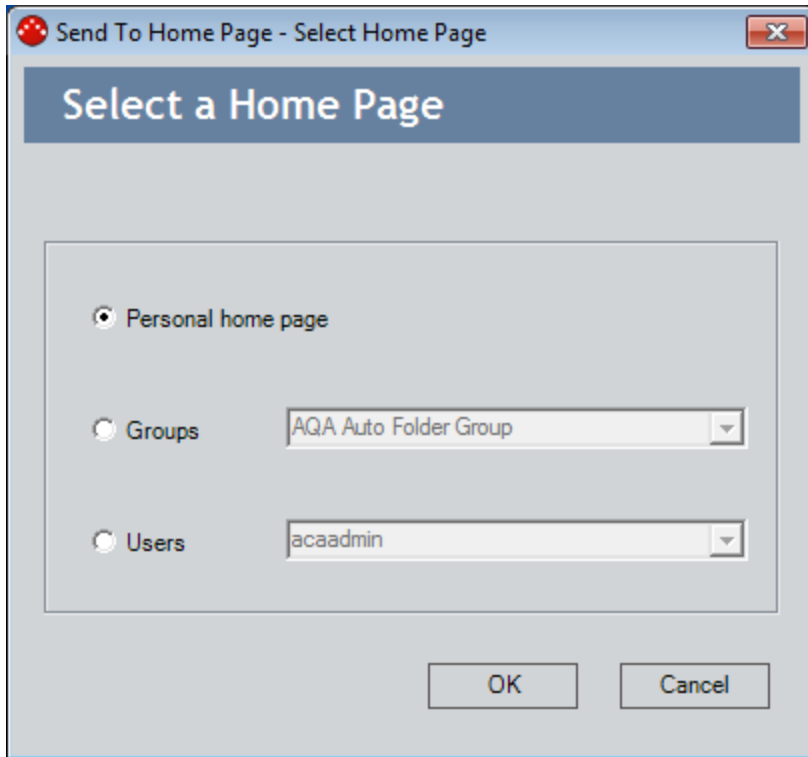
From the View KPI page, you can send an image of the [Dial](#), [Trend Chart](#), or [Trend Data](#) to a Home Page.

To send a KPI image to a Home Page:

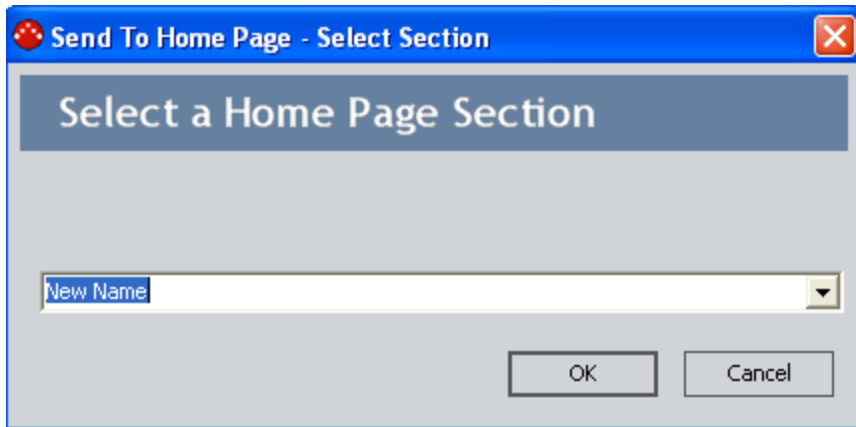
1. Right-click the image that you want to send.
2. On the shortcut menu that appears, point to **Send To**, and then click **Home Page**.

Note: The shortcut menu also gives you the option of sending a link to your desktop or to another user via an email message. Creating a link in this way is the same as using the **Send To** link on the **Common Tasks** menu.

The **Send To Home Page - Select Home Page** dialog box appears.



3. Select the Home Page where you want to send the image, and click **OK**.
The **Send To Home Page - Select Section** dialog box appears.

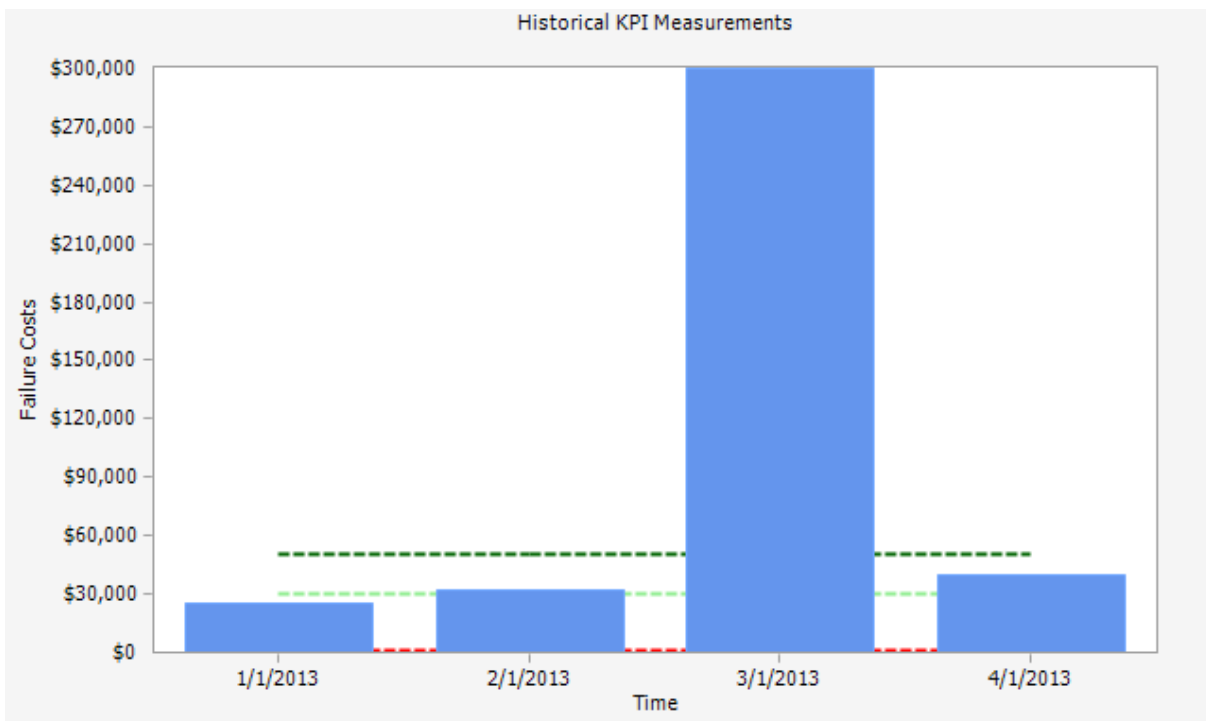


4. Select the desired section, and click **OK**.
The image is sent to the selected Home Page and placed in the designated section.

About Modifying the Maximum Y-Axis Scale Value

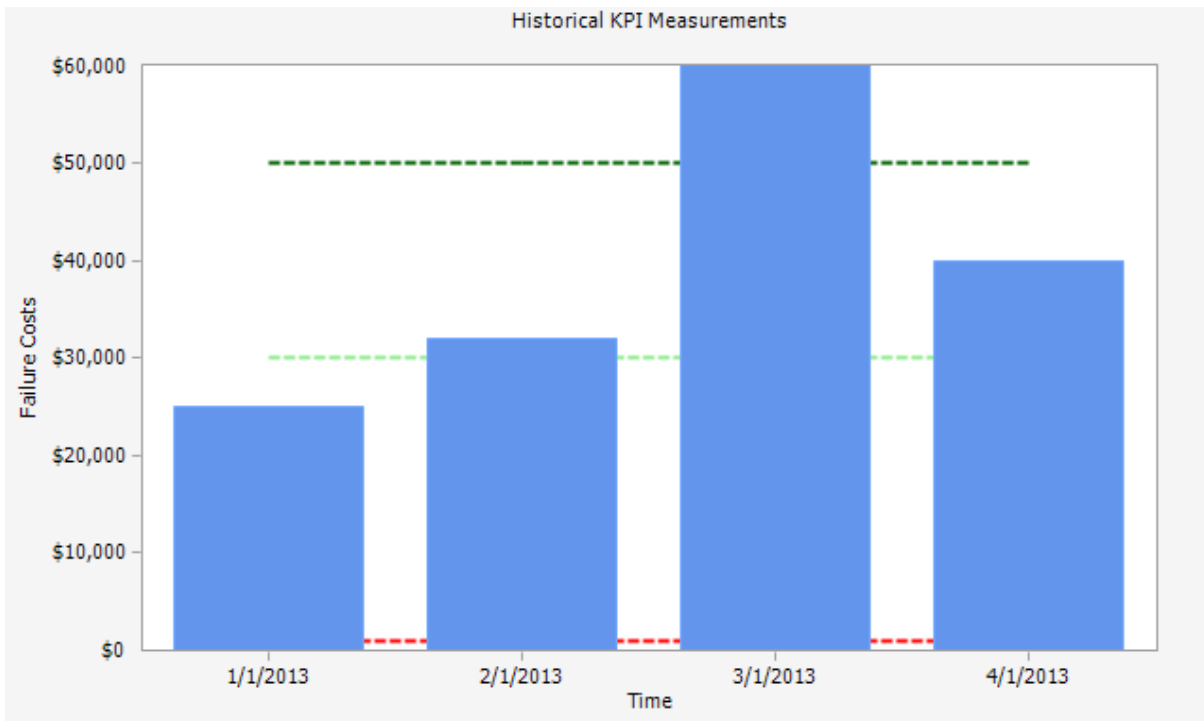
By default, the minimum value plotted on the y-axis scale on the trend chart is 0 (zero) and the maximum value is based upon the highest KPI value. In some cases, one or more KPI values in the trend chart may be significantly higher or lower than other KPI values, making it difficult to view trends in the majority of the data. [You can modify the y-axis scale range on the trend chart](#) to view trends in KPI values more easily.

For example, suppose that a KPI is measuring failure costs for a facility. The KPI measurements usually range from \$10,000 to \$50,000. After a fire, the KPI measurement for one month increased to \$300,000. The following image displays the trend chart for this scenario. By default, the underlying data dictates that the maximum value on the y-axis scale should be \$300,000, making it difficult to see trends in the data from the months in which the fire did *not* occur.



You can [adjust the y-axis scale range using the Y-Axis Range dialog box](#) in order to see data trends in the other KPI measurements more clearly. The following image shows an example of the same trend chart shown in the preceding image when the maximum value of \$60,000 has been specified on the y-axis scale.

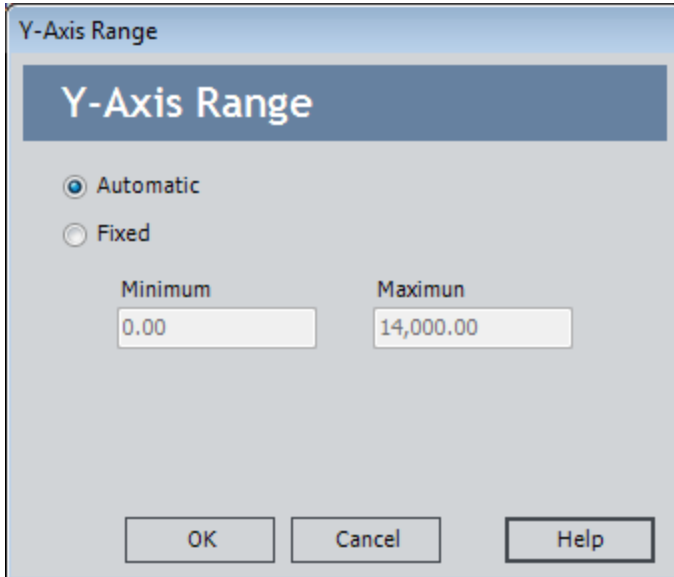
About Modifying the Maximum Y-Axis Scale Value



By adjusting the maximum value on the y-axis scale, you can see that the KPI measurements for the months that did *not* include the cost of the fire are steadily increasing. This may lead you to conclude that there are other issues in the facility that are causing an increase in failure costs.

Aspects of the Y-Axis Range Dialog Box

You can use the Y-Axis Range dialog box to [modify the minimum or maximum value plotted on the y-axis scale on the trend chart.](#)



The Y-Axis Range dialog box contains the following options:

- **Automatic:** Specifies that the:
 - *Minimum* value plotted on the y-axis scale will be *0.00* (zero)
 - *Maximum* value plotted on the y-axis scale will be based upon the highest KPI value.

This option is selected by default.

- **Fixed:** Specifies that the y-axis scale range will be user-defined. When you select this option, the following text boxes below the **Fixed** option become enabled:
 - **Minimum:** You should type the *minimum* value that you want plotted on the y-axis scale in this text box. By default, this text box contains the value *0.00*.
 - **Maximum:** You should type the *maximum* value that you want plotted on the y-axis scale in this text box. By default, this text box contains the maximum value currently plotted on the y-axis. In the image in this topic, this text box contains the value *14,000.00*.

These text boxes are enabled only when the **Fixed** option is selected.

Below these options, the following buttons appear:

- **OK:** Closes the Y-Axis Range dialog box and updates the y-axis scale on the trend chart according to your changes.
- **Cancel:** Closes the Y-Axis Range dialog box without making any changes to the y-

axis scale on the trend chart.

- **Help:** Displays the context-sensitive Help topic for the **Y-Axis Range** dialog box.

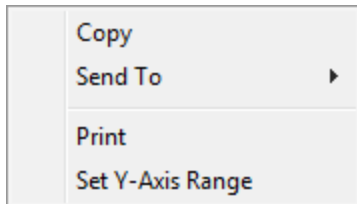
Modifying the Y-Axis Scale Range

In cases where one or more KPI values is significantly lower or higher than other KPI values plotted on the trend chart, you may want to modify the scale range of the y-axis to make it easier to see trends in your data.

To modify the y-axis scale range on the trend chart:

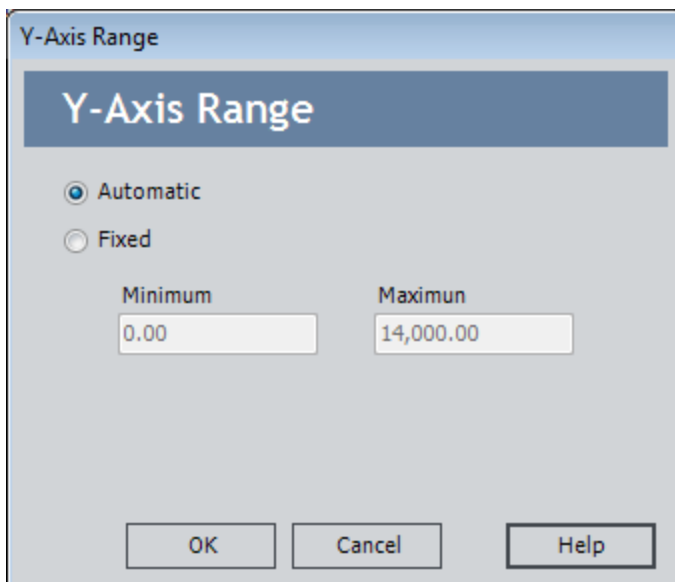
1. On the **View KPI** page, right-click the trend chart.

A shortcut menu appears.



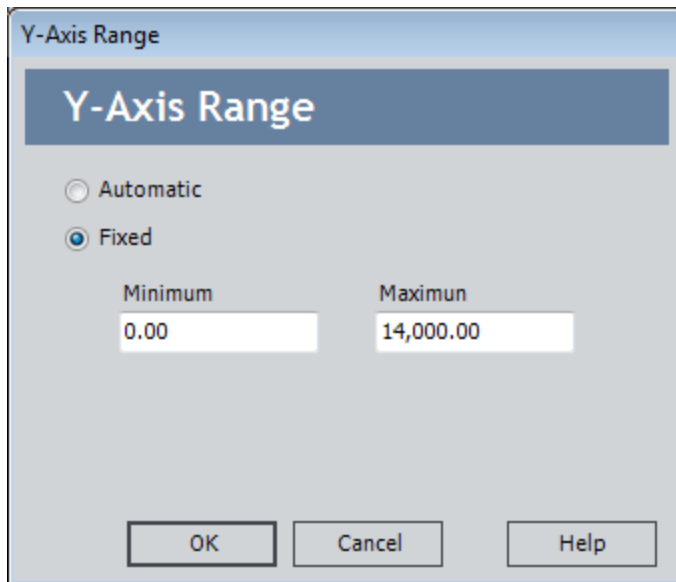
2. Click the **Set Y-Axis Max value** link.

The [Y-Axis Range dialog box](#) appears.



3. Select the **Fixed** option.

The **Minimum** and **Maximum** text boxes become enabled.



4. In the **Minimum** and **Maximum** text boxes, type the minimum and maximum values that you want plotted on the y-axis, respectively.
5. Click **OK**.

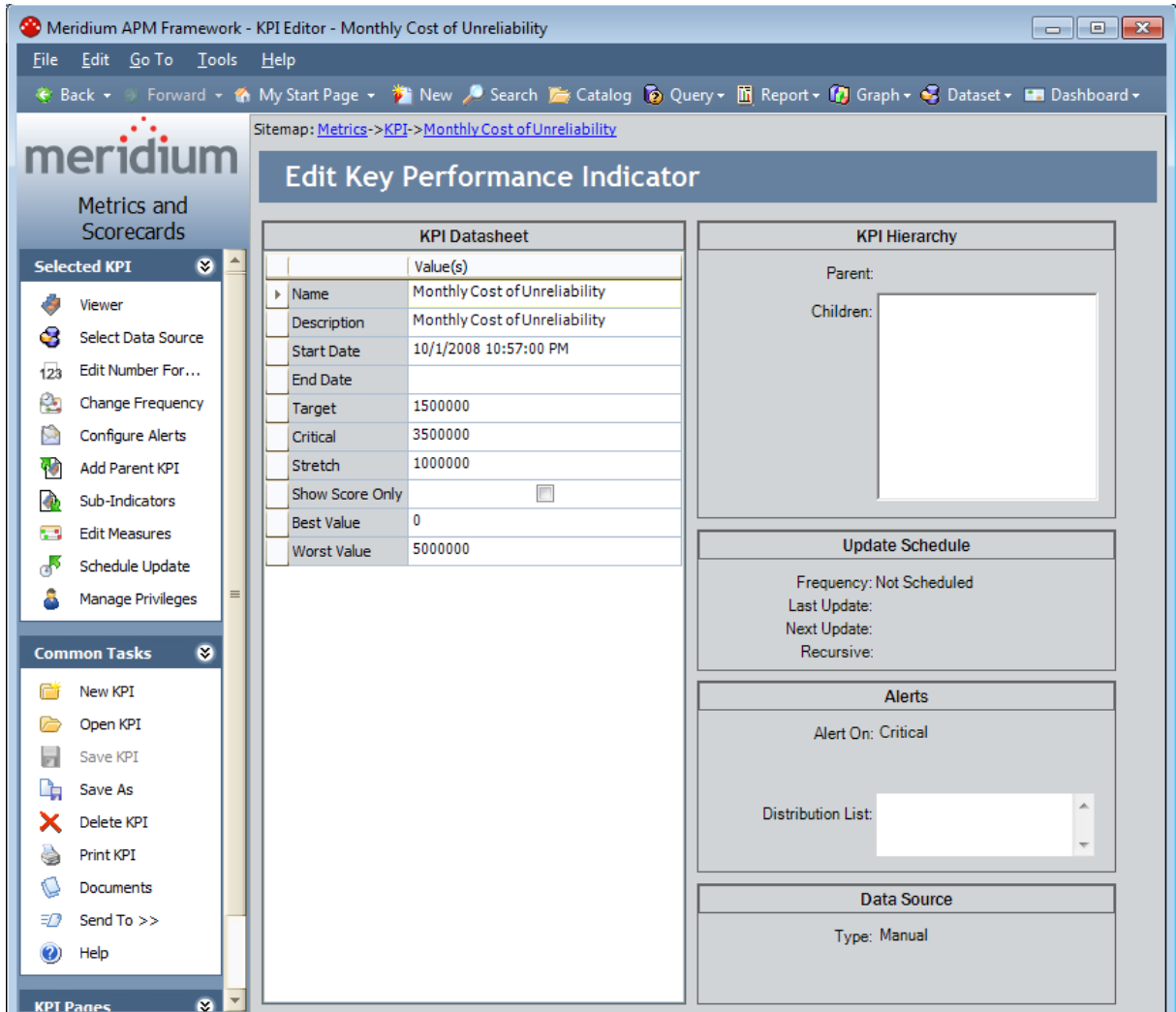
The **Y-Axis Range** dialog box closes, the **View KPI** page returns to focus, and the trend chart is redrawn according to your specifications.

Accessing the KPI Editor Page

To access the KPI Editor page:

1. On the [Key Performance Indicators page](#), in the list of KPIs, select the row containing the KPI that you want to open on the **KPI Editor** page.
2. On the **Selected KPI** menu, click the **Designer** link.

The KPI appears on the [KPI Editor page](#).



Aspects of the KPI Editor Page

Meridium APM Framework - KPI Editor - Monthly Cost of Unreliability

File Edit Go To Tools Help

Back Forward My Start Page New Search Catalog Query Report Graph Dataset Dashboard

meridium

Metrics and Scorecards

Sitemap: Metrics->KPI->Monthly Cost of Unreliability

Edit Key Performance Indicator

KPI Datasheet	
	Value(s)
Name	Monthly Cost of Unreliability
Description	Monthly Cost of Unreliability
Start Date	10/1/2008 10:57:00 PM
End Date	
Target	1500000
Critical	3500000
Stretch	1000000
Show Score Only	<input checked="" type="checkbox"/>
Best Value	0
Worst Value	5000000

KPI Hierarchy

Parent:

Children:

Update Schedule

Frequency: Not Scheduled
Last Update:
Next Update:
Recursive:

Alerts

Alert On: Critical

Distribution List:

Data Source

Type: Manual

The [KPI Editor page](#) allows you to change the properties of the KPI. The **KPI Editor** page is divided into the following sections:

- **KPI Datasheet:** Displays properties of the KPI, such as Name, Description, Start Date, and End Date.

Note: If selected, the **Show Score Only** check box allows you to view only the score in the Trend chart and Trend Data sections of the **View KPI** page.

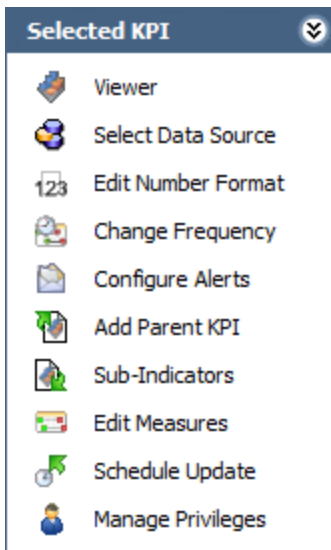
- **KPI Hierarchy:** Displays the parent and children of the KPI.
- **Update Schedule:** Displays the frequency with which the KPI is updated, the last update date, the next update date, and recursive status of the KPI.
- **Alerts:** Displays the Alert status of the KPI and any recipients of the Alert.

- **Data Source:** Displays the selected data source that populates the KPI measurements.

The **KPI Editor** page also contains the following task menus that let you perform tasks associated with the current KPI:

- [Selected KPI](#)
- [Common Tasks](#)
- [KPI Pages](#)

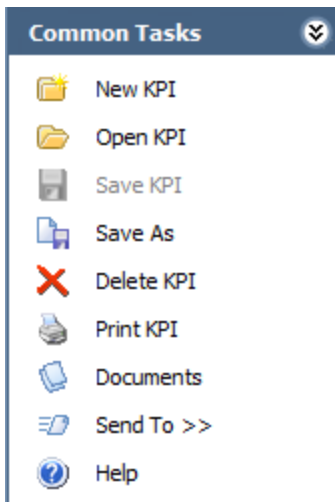
Selected KPI Menu



The **Selected KPI** menu on the **KPI Editor** page contains the following links:

- **Viewer:** Displays the selected KPI on the **View KPI** page.
- **Select Data Source:** Displays the **KPI Data Source Selection** builder, where you can set up the data source for the KPI.
- **Edit Number Format:** Displays the **KPI Number Format** dialog box, where you can define the format for numeric values in the current KPI and (optionally) its sub-indicators.
- **Change Frequency:** Displays the **KPI Frequency** dialog box, where you can indicate the frequency with which KPI measurements are conducted.
- **Configure Alerts:** Displays the **Alert Configuration** dialog box, where you can set up alerts.
- **Add Parent KPI:** Displays the **Add Parent KPI** dialog box, where you can select an upper-level KPI to add as the parent KPI. If a parent KPI is already defined for the selected KPI, this link is labeled **Remove Parent**. When you click the **Remove Parent** link, a confirmation message. After you confirm the action, the parent KPI is removed from the selected KPI.
- **Sub-Indicators:** Displays the **Sub-indicators** dialog box, where you can select sub-indicators for the KPI.
- **Edit Measures:** Displays the **KPI Measures** window, where you can edit the current values for the KPI.
- **Schedule Update:** Displays the **KPI Update Schedule** dialog box, where you can schedule an item to be updated at a certain interval. This link is disabled until you save the KPI record.
- **Manage Privileges:** Displays the **Manage Privileges** window, where you can assign or revoke access rights to the KPI for users or groups.

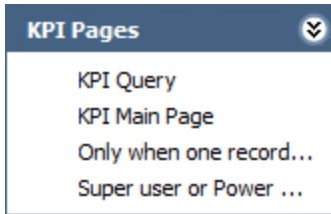
Common Tasks Menu



The **Common Tasks** menu on the **KPI Editor** page contains the following links:

- **New KPI:** Displays the **KPI Builder**, where you can [create a KPI record](#).
- **Open KPI:** Displays the **Key Performance Indicators** page, where you can open an existing KPI record.
- **Save KPI:** Saves the KPI record. If you are viewing an existing KPI record, this link is disabled until you make a change to the KPI record.
- **Save As:** Displays the **Save As** dialog box, where you can save the current KPI record with a different name or to a different location. If you are viewing an existing KPI record, this link is disabled until you make a change to the KPI.
- **Delete KPI:** Displays a confirmation message and then [deletes the current KPI](#). This link is disabled until you save the KPI record.
- **Print KPI:** Displays the **Print** dialog box, where you can print the KPI.
- **Documents:** Displays the reference documents associated with the KPI record. This link is disabled until you save the KPI record.
- **Send To:** Displays a submenu with options that let you provide a link to the current page on your desktop (create shortcut), in an email message, or on a Home Page. This link is disabled until you save the KPI record.
- **Help:** Displays the context-sensitive Help topic for the **KPI Editor** page.

KPI Pages Menu



The **KPI Pages** menu on the **View KPI** page contains the Associated Pages that have been configured for the KPI family.

About KPI Data Sources

The values for a KPI measurement are pulled from a specified data source. Measures can be created without a data source, using aggregations from sub-indicators or by generating a data source from an Analysis Services Cube.

You can create a datasource by using:

- [An Analysis Services Cube](#): By using an Analysis Services Cube, you are extracting data directly from a Cube that has been configured in the Analysis Services application.
- [An Aggregation from Sub-Indicators](#): By using an aggregation, you are specifying that the sub-indicators, or the lower level variables of the KPI, should be calculated together for the data source.
- [Manual Input](#): By defining manual input for the KPI, you are choosing to use the specific values that you provide in lieu of a data source.
- [A Meridium APM query](#): By using a query, you are specifying a saved query whose data you want to use as the source of the KPI.

Using an Analysis Services Cube as a KPI Data Source

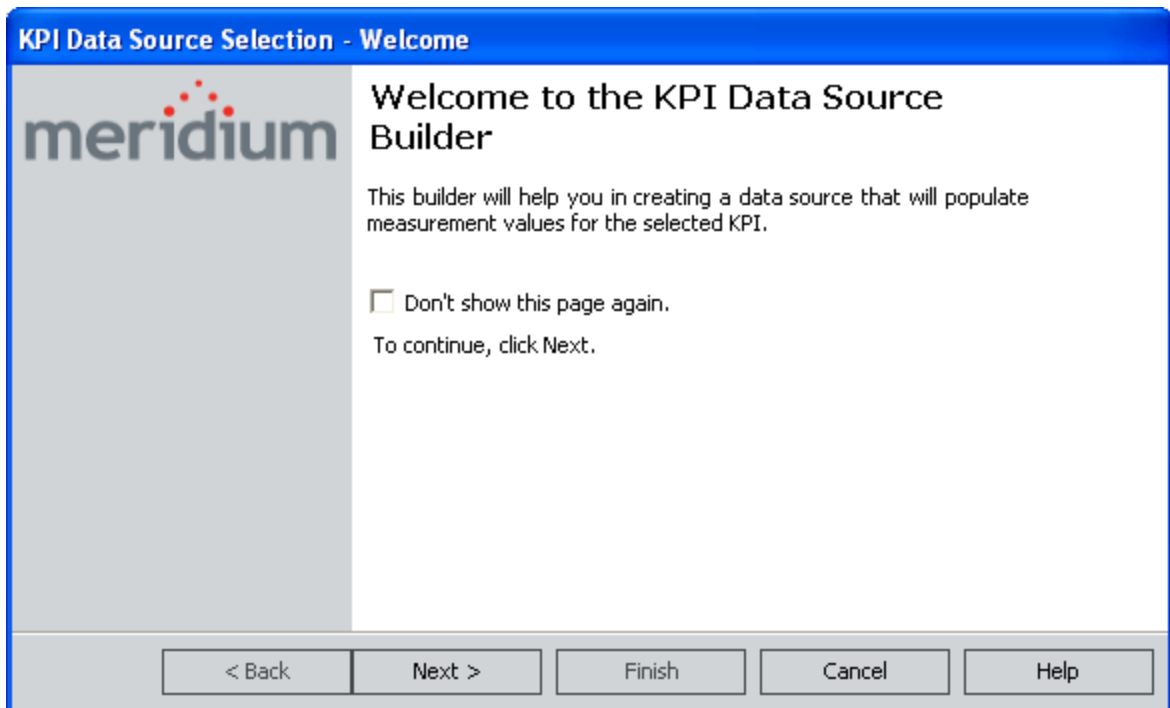
When you use an Analysis Services Cube as a KPI data source, you are extracting data directly from a cube that has been configured in the Analysis Services application and using it to define a KPI.

The following instructions provide details on creating a KPI using an Analysis Services Cube as the data source.

To create a KPI using an Analysis Services Cube as the data source:

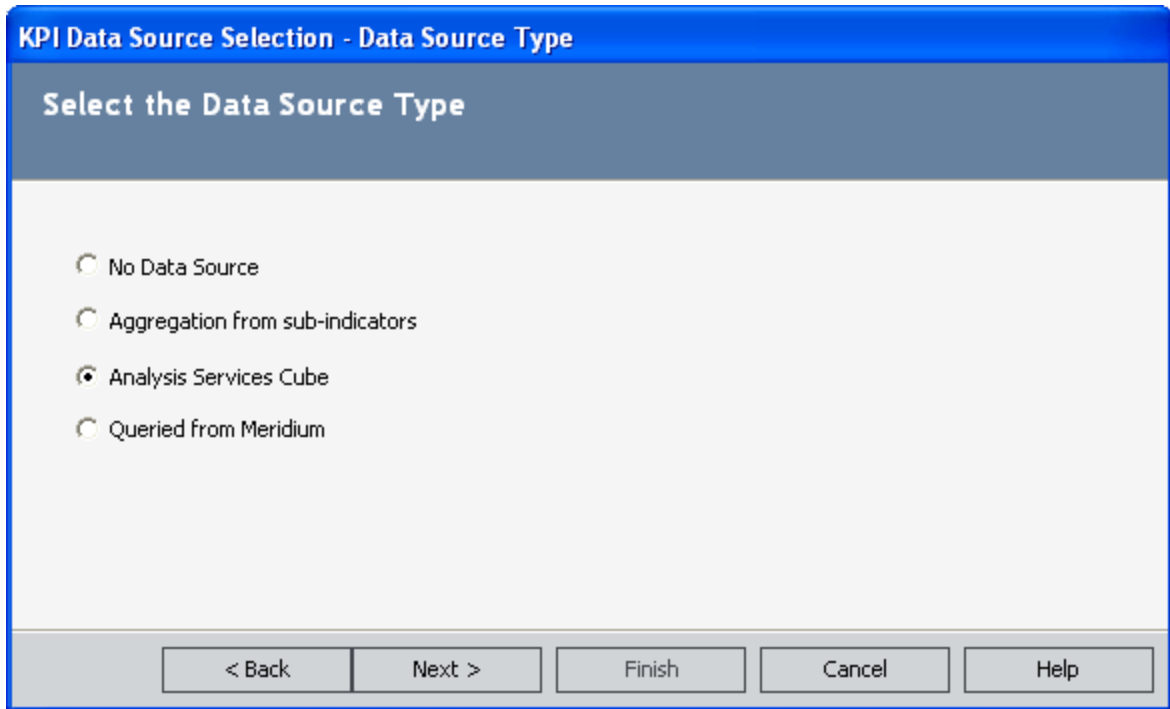
1. On the **KPI Editor** page, on the **Selected KPI** menu, click the **Select Data Source** link.

The **KPI Datasource Selection** builder appears, displaying the Welcome screen.

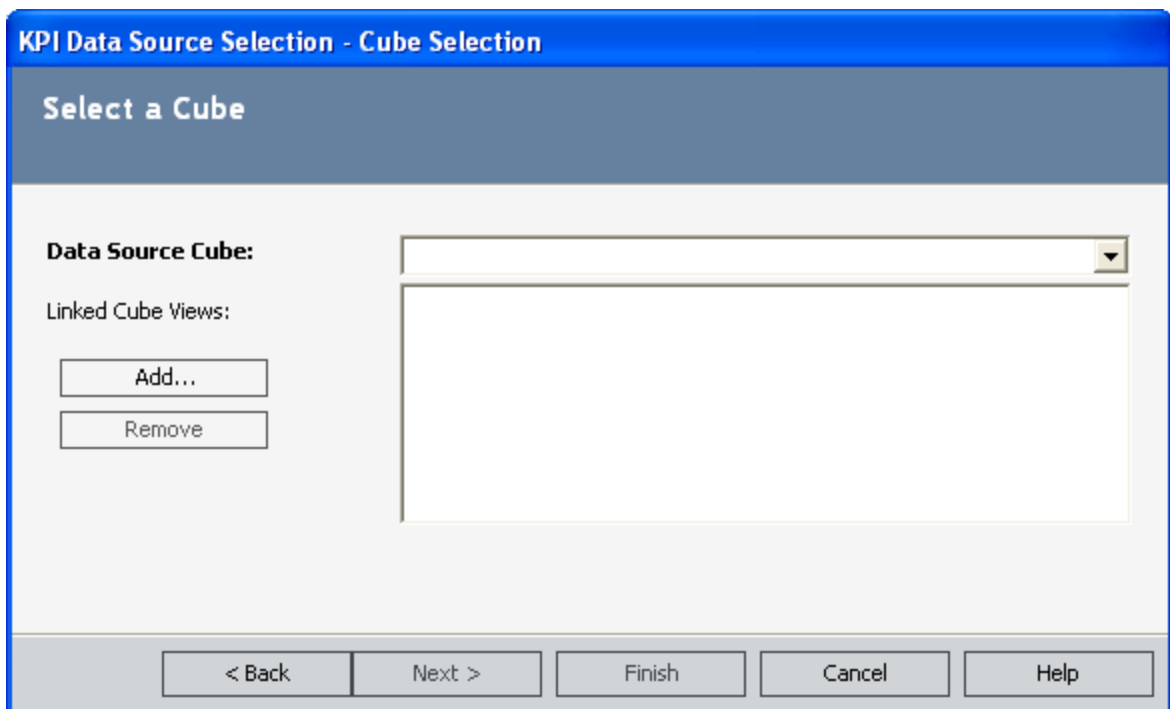


2. Click the **Next** button.

The **Datasource Type** screen appears.



3. Select the **Analysis Services Cube** option, and then click the **Next** button.
The **Cube Selection** screen appears.

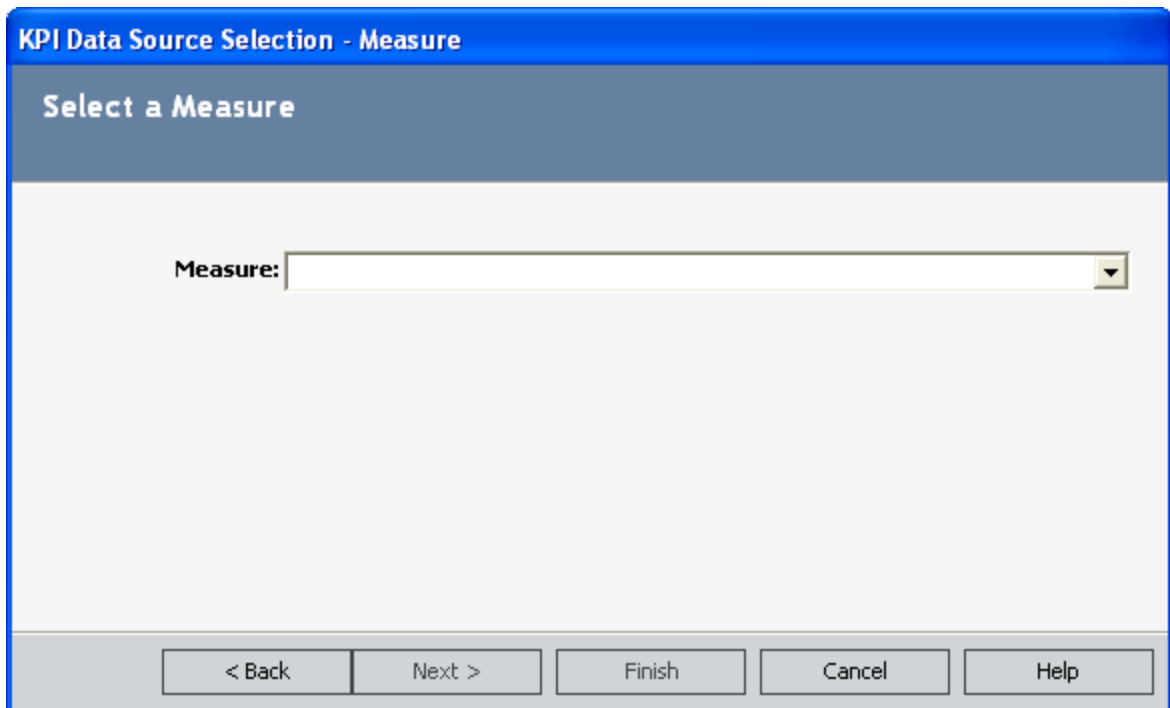


4. In the **Datasource Cube** list, select a cube that contains the data that will be used to update the KPI measurements.
5. If you want to link Metric Views to the KPI, click the **Add** button, navigate through the Catalog, select the desired Metric View, and then click the **Open** button.

Note: If you want to remove a Metric View from the list, select the Metric View in the **Linked Cube Views** list, and click the **Remove** button.

6. Click the **Next** button.

The **Measure** screen appears.



7. Select the measure you want to use to calculate the actual value for the KPI. The actual value is the current value.
8. Click the **Next** button.

The **Time Dimension** screen appears.

KPI Data Source Selection - Time Dimension

Select the Time Dimension

Time Dimension:

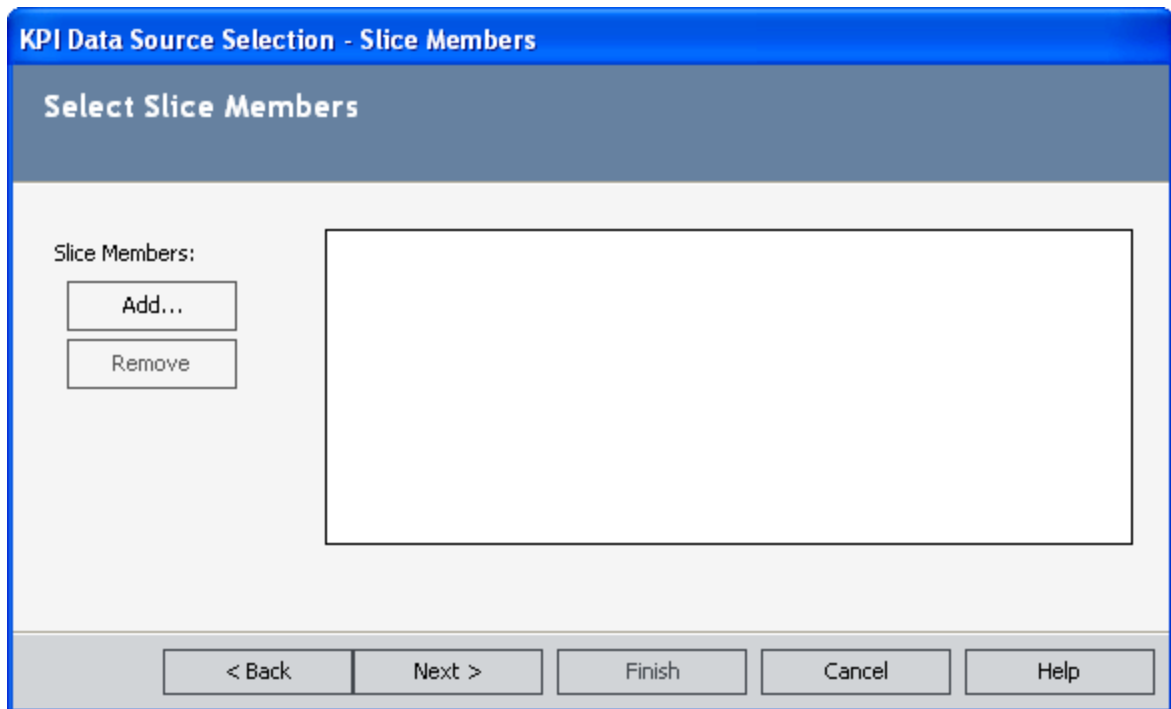
Time Level:

< Back Next > Finish Cancel Help

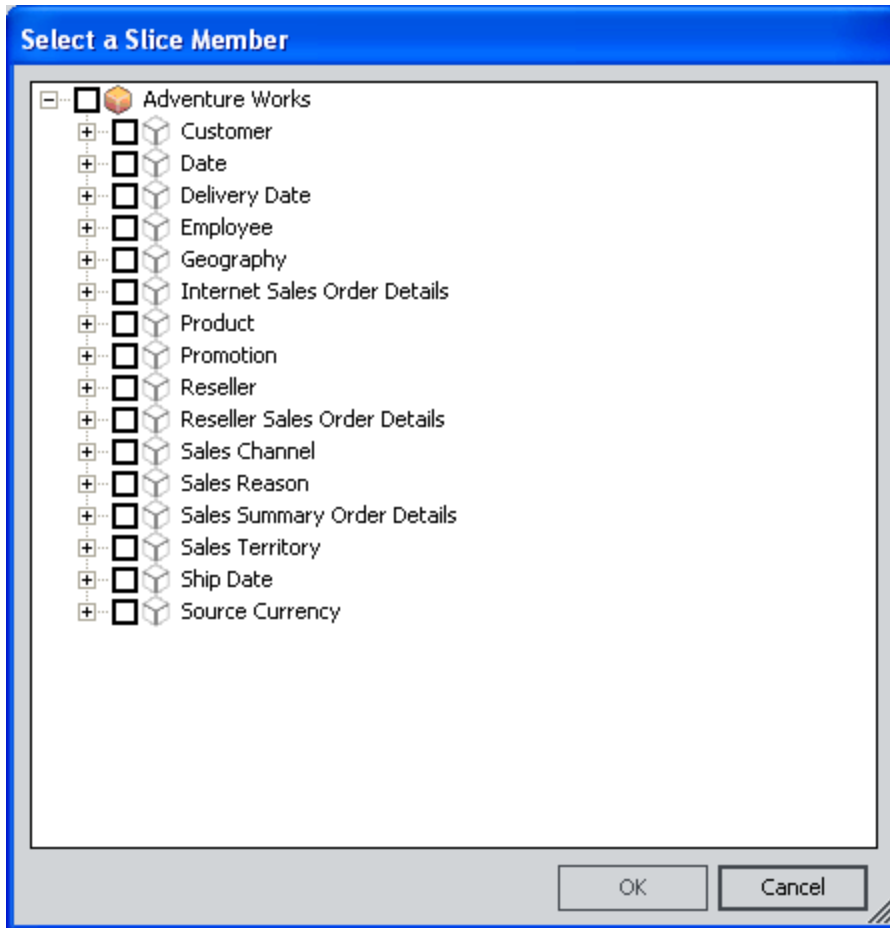
9. Choose a time dimension and level. The time dimension includes all time measurements from the Analysis Services Cube. The time level includes the frequency of the measurements. Use the **Time Level** drop down list to select a hierarchy level, such as month, week or year.

Hint: When you highlight a hierarchy level, a tooltip will appear, displaying the unique member name of the time level to distinguish it from other hierarchy levels in the list.


10. Click the **Next** button.
The **Slice Members** screen appears.



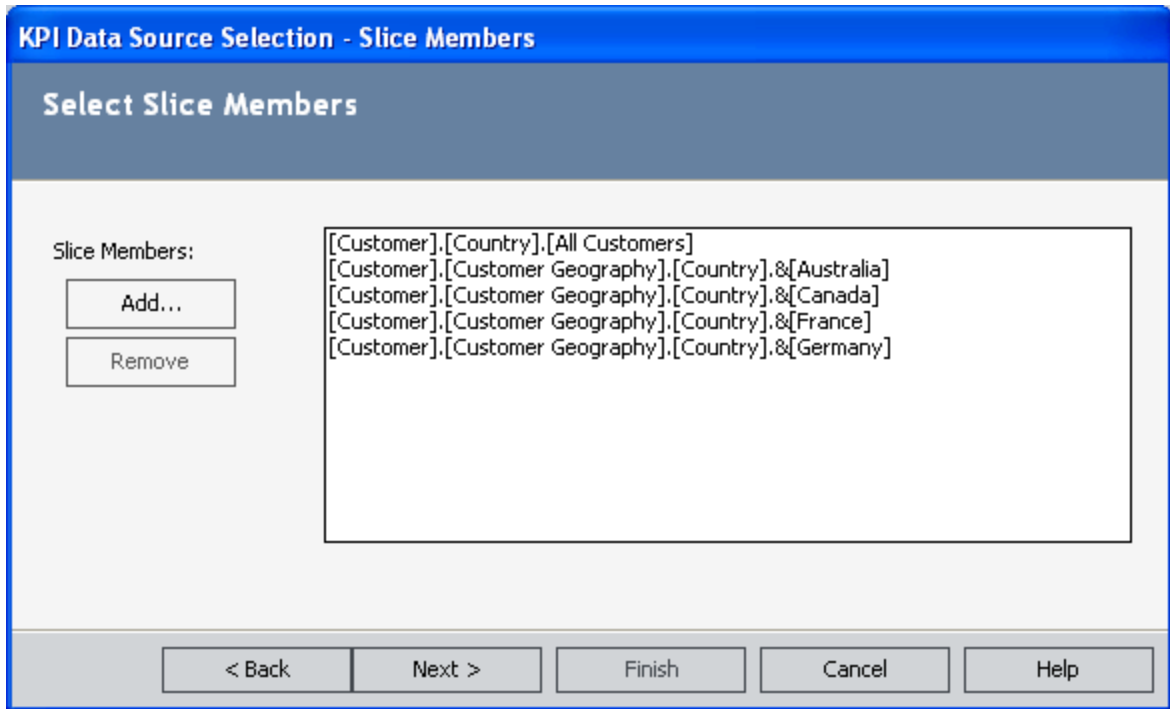
11. If you want to add slice members to reduce the scope of the measure, follow steps 12 and 13. If you do not want to add slice members, proceed to step 14.
12. On the **Slice Members** screen, click the **Add** button.
The **Select a Slice Member** dialog box appears.



13. Expand the tree, select the desired slice members, and click **OK**.

Note: Only elements with the  icon to the left of the label can be selected.

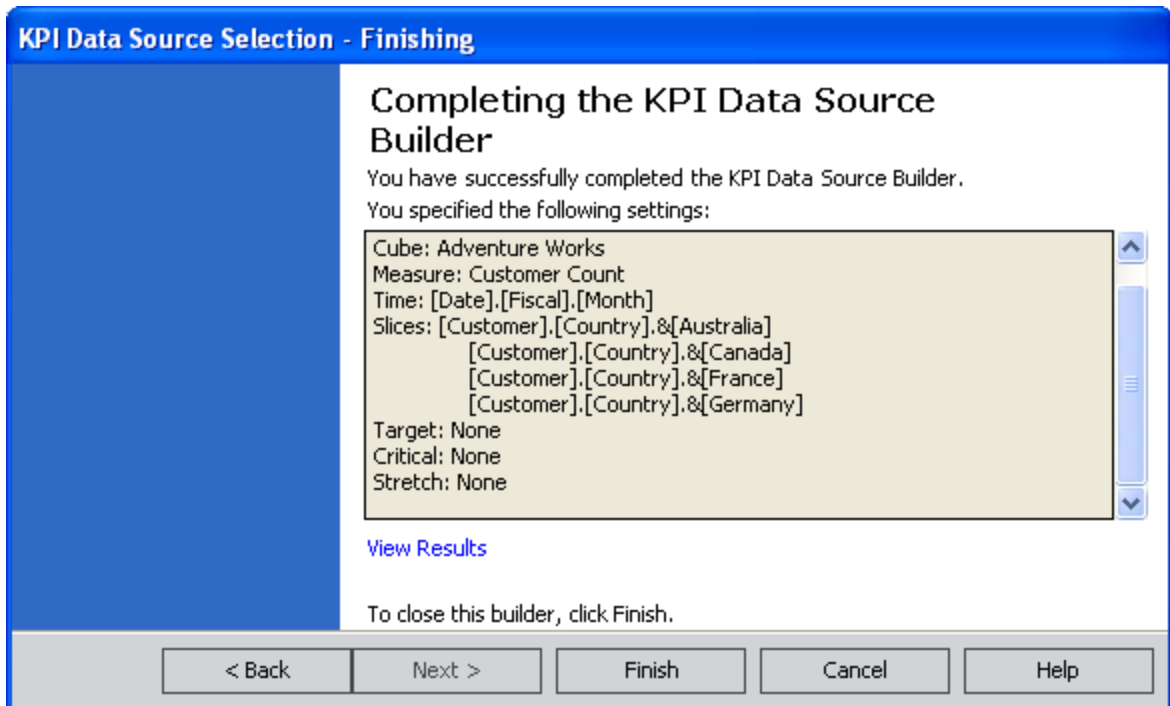
The selected slice members are displayed on the **Slice Members** screen.



Note: To remove a slice, select desired slice in the list and click the **Remove** button.

14. Click the **Next** button.

The **Finishing** screen appears, displaying a summary of the datasource settings.



15. Review the settings for the KPI datasource. The current entries are listed and can be changed by using the **Back** button to navigate to the step that you want to change. To close the Builder, click the **Finish** button.

The datasource is saved to the KPI.

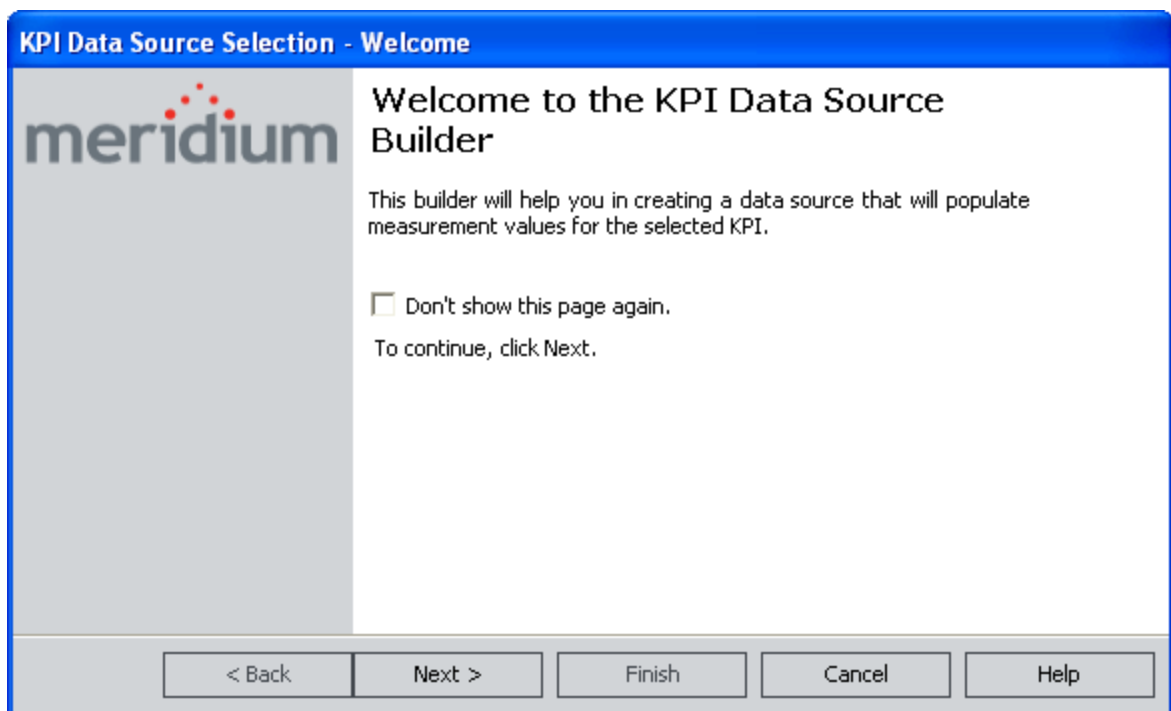
Using an Aggregation of Sub-Indicators

An aggregation is a table or structure containing pre-calculated data for a Cube. By using an aggregation, you are specifying that the sub-indicators, or the lower level variables of the KPI, should be calculated together for the data source. Within Metrics and Scorecards, you can aggregate sub-indicators by using their sum, average, weighted average, minimum, maximum, actual value, stretch value or critical value.

To create a data source from an analysis services Cube:

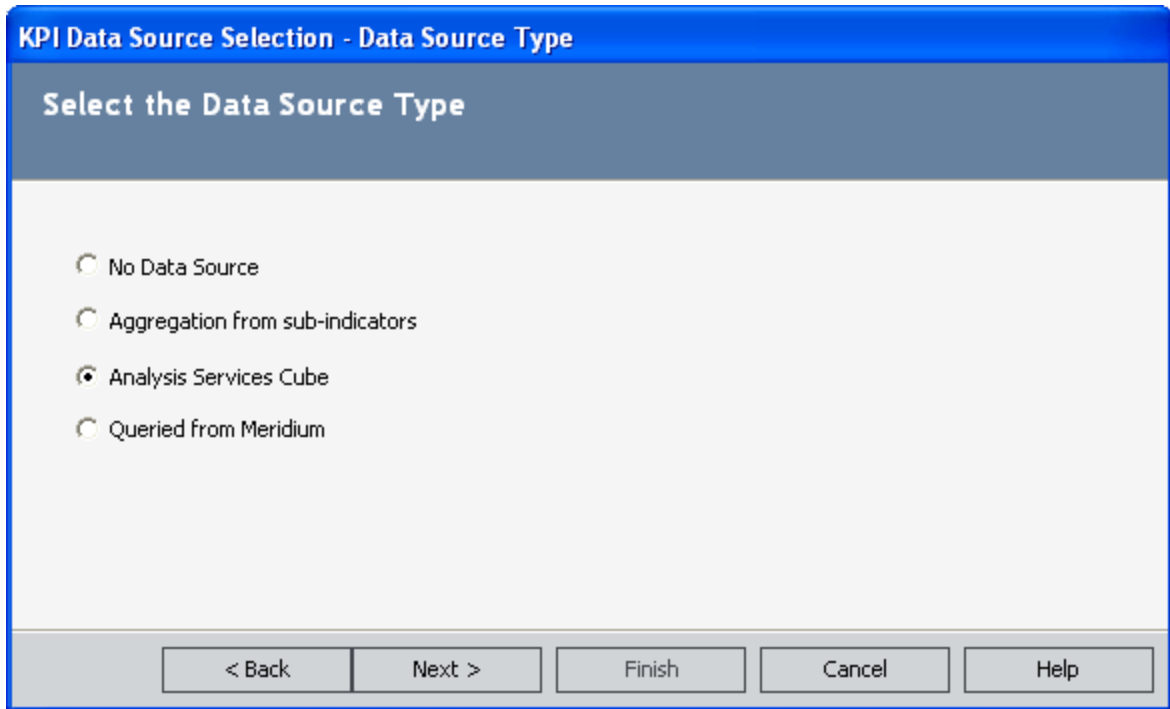
1. On the **KPI Editor** page, on the **Selected KPI** menu, click the **Select Data Source** link.

The **KPI Data Source Selection** builder appears, displaying the **Welcome** screen.

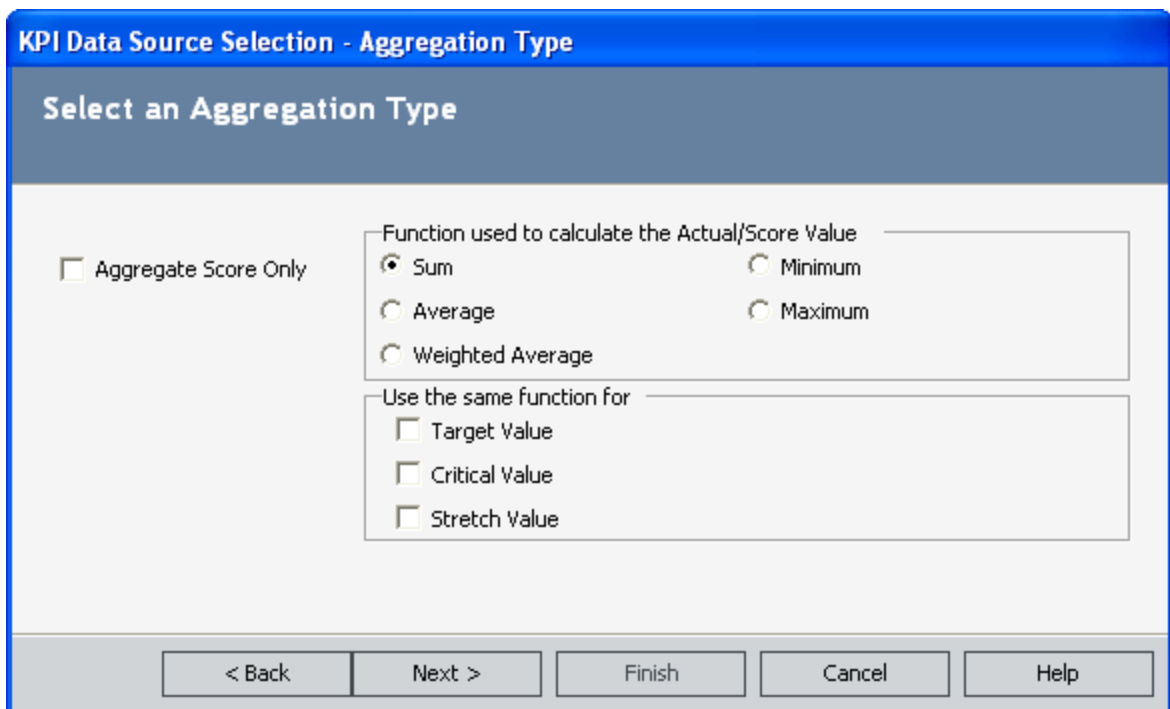


2. Click the **Next** button.

The **Data SourceType** screen appears.



3. Select the **Aggregation from sub-indicators** option, and click the **Next** button. The **Aggregation Type** screen appears.



4. If you want only a normalized score to be calculated from sub-indicators, select the **Aggregate Score Only** check box. The actual value will not be populated.
5. Set the **Function used to calculate the Actual/Score Value** option. If you selected the **Aggregate Score Only** check box, then you are determining the function used to calculate the score value. If you did not check the **Aggregate Score Only** check box, then you are determining the function used to calculate the actual value. Select any of the following functions:
 - **Sum:** The addition of all sub-indicator measurements.
 - **Average:** The calculated average of the sub-indicators.
 - **Weighted Average:** The value of the KPI is calculated from the value of its sub-indicators (e.g., V1, V2, V3, and V4) and the value of pre-determined weight factor associated with each sub-indicator (e.g., K1, K2, K3, and K4). The weighted average is usually calculated as $(K1 \times V1 + K2 \times V2 + K3 \times V3 + K4 \times V4)/(K1 + K2 + K3 + K4)$.
 - **Minimum:** The smallest sub-indicator measurement possible.
 - **Maximum:** The largest sub-indicator measurement possible.
6. Set the **Use the same function for** options. The function you selected to calculate the Actual/Score value will also be used to calculate the values you select in this section.

If you select the [Target Value, Critical Value, and Stretch Value check boxes](#), each of these values will be calculated by the same function. In this case, you can skip to step 11.

-or-

If you leave one or more of the **Target Value**, **Critical Value**, or **Stretch Value** check boxes empty, when you click the **Next** button, the **Range Aggregation** screen will appear, where you will be able to select a different aggregation function for the remaining attributes or select not to use an aggregation function at all. Continue with step 7.

7. Click the **Next** button.

The **Range Aggregation** screen appears.

KPI Data Source Selection - Range Aggregation

Select an Aggregation Type for Range Attributes

Attribute: Target

Aggregation function

Sum Minimum

Average Maximum

Weighted Average None

< Back Next > Finish Cancel Help

8. In the **Attribute** list, select the attribute type for which the value will be calculated from sub-indicators. The attributes are the same options that appeared in the **Use the same function for** section on the **Aggregation Type** screen in step 6.
9. In the **Aggregation function** area, select the aggregation function for the attribute that is currently selected in the **Attribute** list. The aggregation functions are the same options that appeared on the **Aggregation Type** screen in step 5.
10. Repeat steps 8 and 9 for until you have selected or reviewed the aggregation function for *each attribute* (i.e., Target, Critical, and Stretch).
11. Click the **Next** button.

If you selected the **Weighted Average** option on the **Select the Aggregation Type** screen, the **Average Weights** screen appears, displaying the sub-indicators you selected for the KPI. If you did *not* select the **Weighted Average** option, you can skip to step 13.

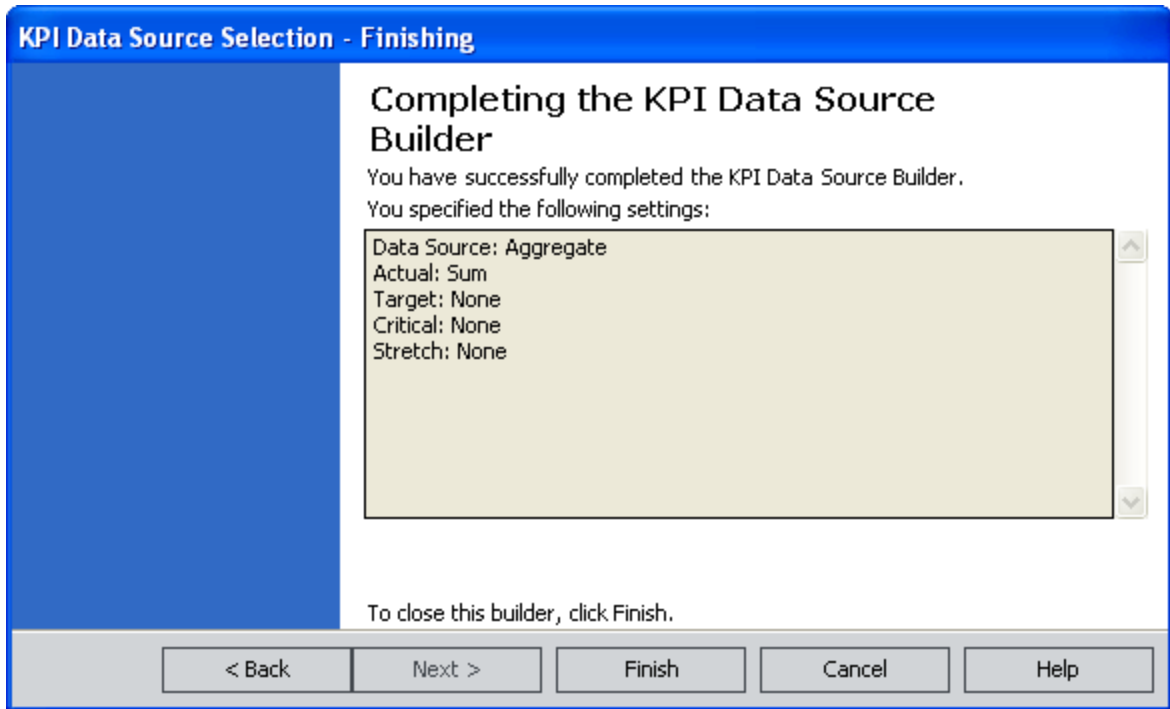
KPI	Weight
AQA - Schedule Update - Every Year	1
AQA - Schedule Update - Every Minute	1
AQA - Schedule Update - Every Week	1
AQA - Schedule Update - Every Day	1
AQA - Schedule Update - Every Month	1

12. If desired, you can manually change the weight of each sub-indicator in the **Weight** column. The greater the value, the more weight that is given to the associated sub-indicator when the weighted average is calculated.

Note: The sum of the weight factors must be greater than zero, or an error message will be displayed when you click the **Next** button.

13. Click the **Next** button.

The **Finishing** screen appears, displaying a summary of the data source settings.



14. Review the settings for the KPI data source. The current entries are listed and can be changed by using the **Back** button to navigate to the step that you want to change. To close the **KPI Data Source Selection** builder, click the **Finish** button.

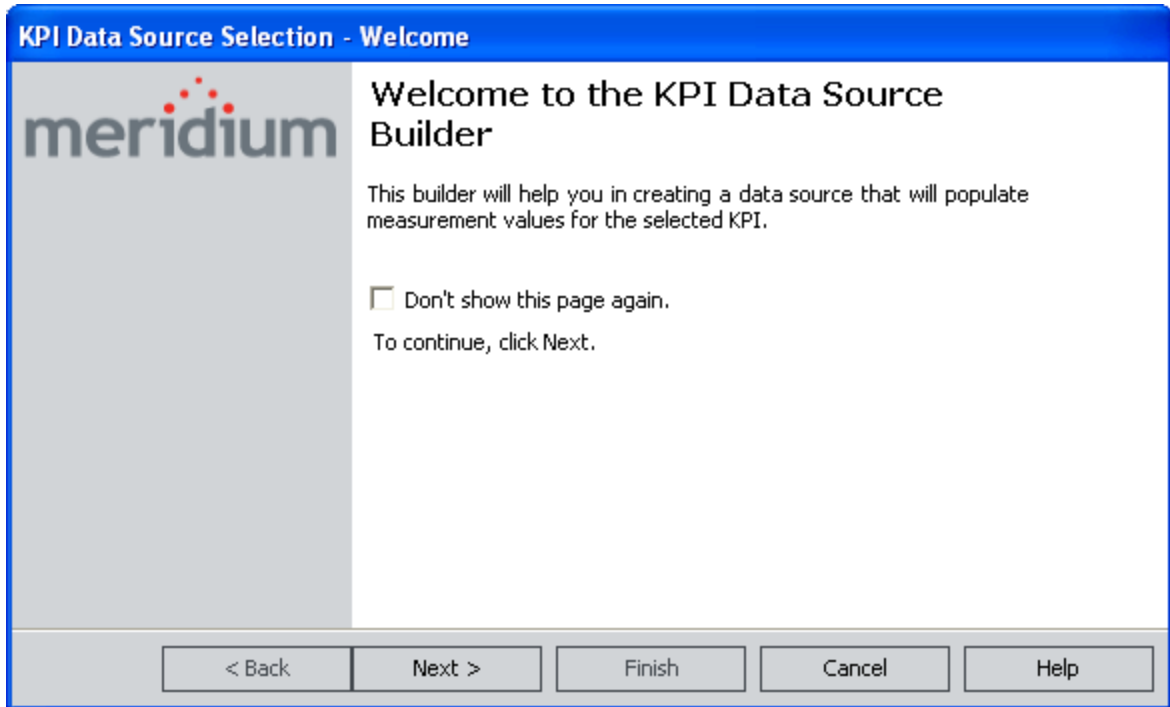
The data source is saved to the KPI.

Using Manual Input

To create a data source using manual input:

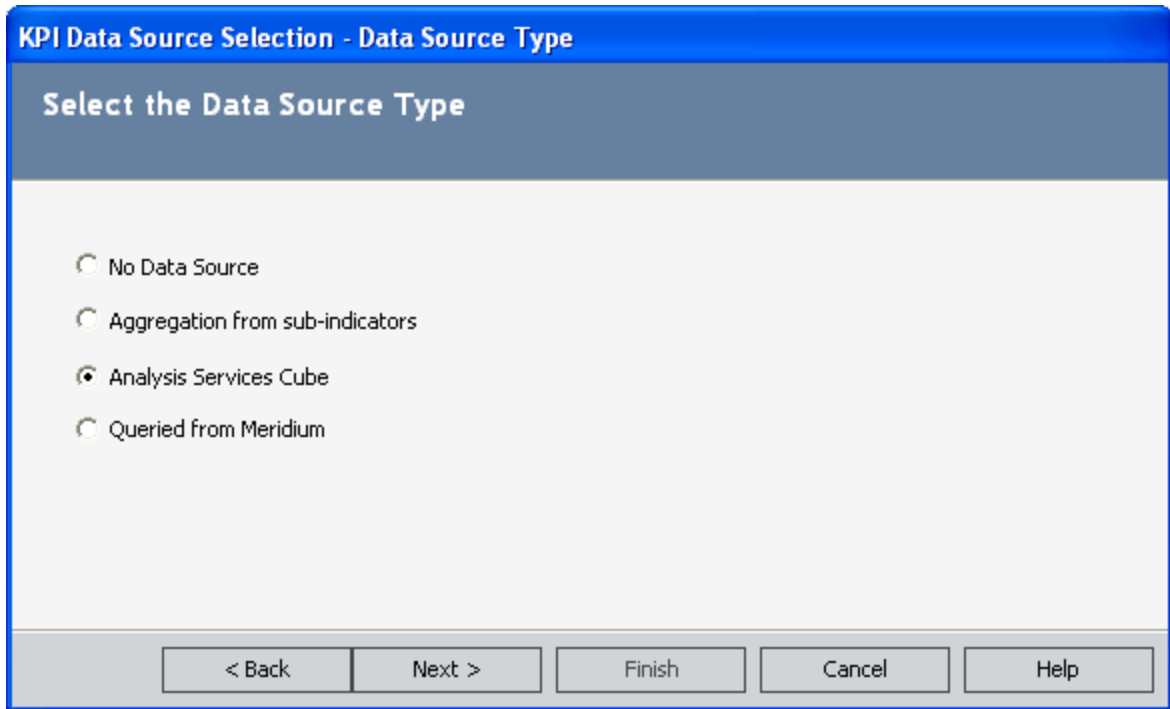
1. On the **KPI Editor** page, on the **Selected KPI** menu, click the **Select Data Source** link.

The **KPI Data Source Selection** builder appears, displaying the Welcome screen.



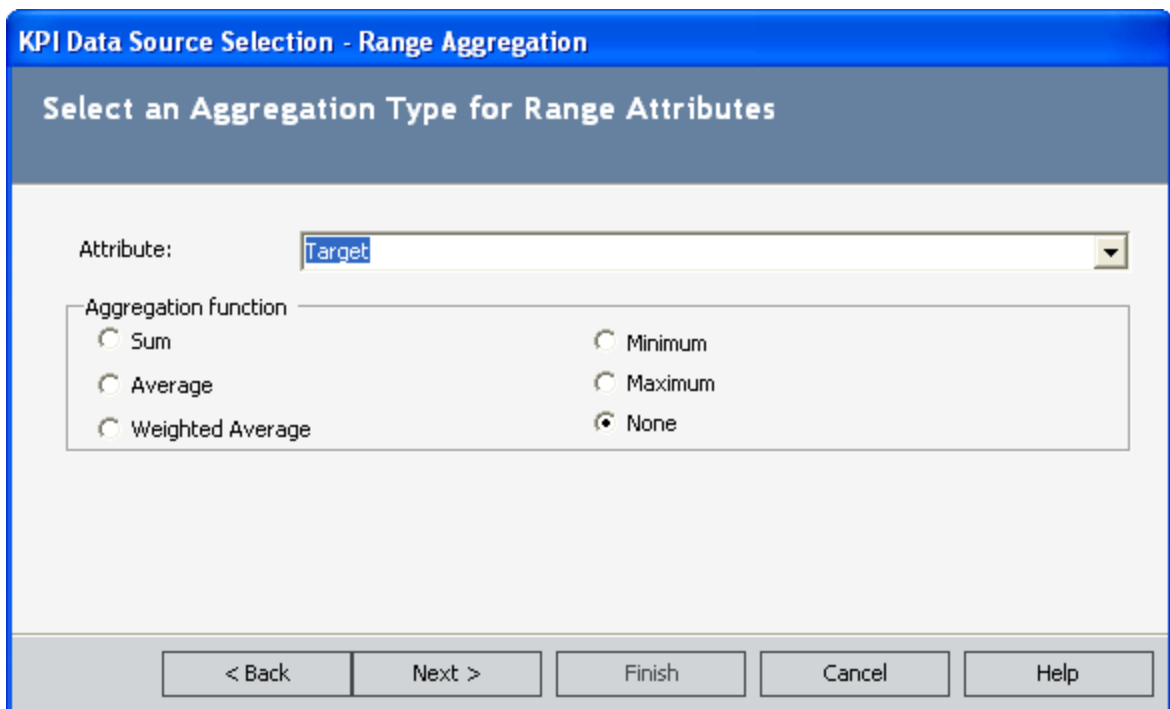
2. Click the **Next** button.

The **Data SourceType** screen appears.



3. Select the **No Data Source** option, and click the **Next** button.

The **Range Aggregation** screen appears.

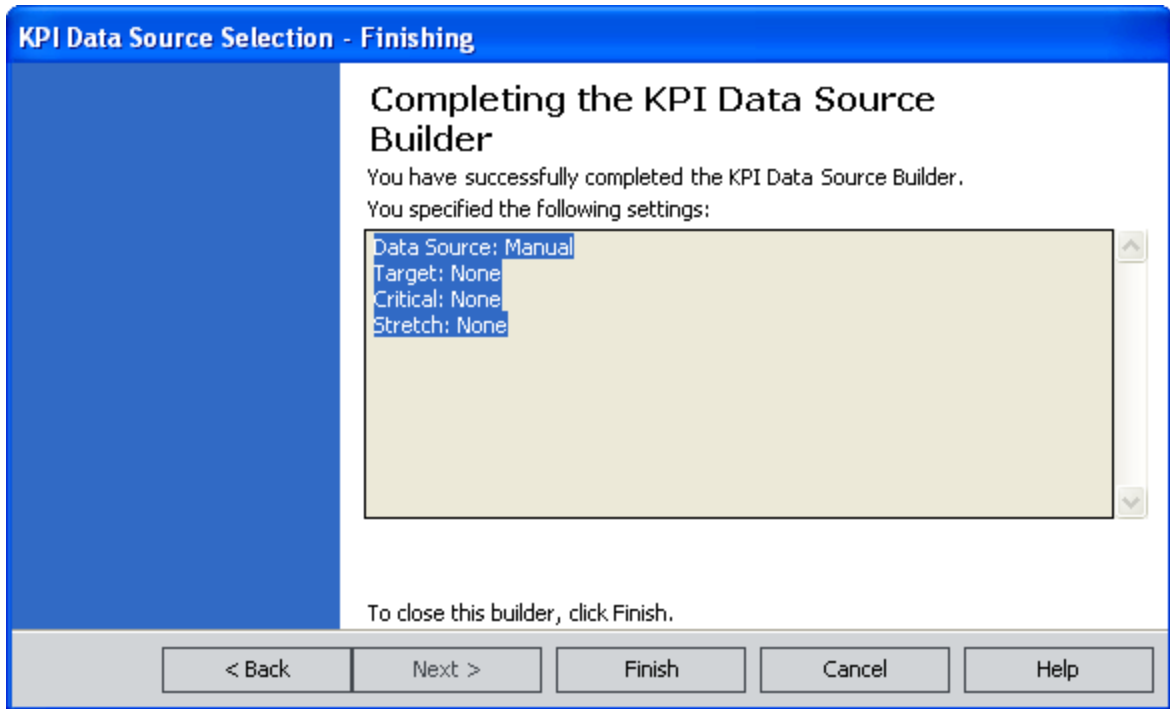


4. In the **Attribute** list, select the attribute type for which the value will be calculated from sub-indicators:
 - **Target:** The value that will be your aim for the KPI measurement. A target is a quantitative measurement of a performance metric that is to be achieved by a given time.
 - **Critical:** This value indicates that the KPI has reached a very low performance level.
 - **Stretch:** The target value that is achieved by breakthrough performance.
5. In the **Aggregation function** area, select the aggregation function:
 - **Sum:** The addition of all sub-indicator measurements.
 - **Average:** The calculated average of the sub-indicators.
 - **Weighted Average:** The value of the KPI is calculated from the value of its sub-indicators (e.g., V1, V2, V3, and V4), and the value of pre-determined weight factor associated with each sub-indicator (e.g., K1, K2, K3, and K4). The weighted average is usually calculated as $(K1 \times v1 + k2 \times V2 + K3 \times V3 + K4 \times V4)/(K1 + K2 + K3 + K4)$.

Note: The sum of the weight factors must be greater than zero, or an error message will be displayed when you click the **Next** button.

 - **Minimum:** The minimum measurement.
 - **Maximum:** The maximum measurement.
 - **None:** No measurement for the attribute.
6. Click the **Next** button.

The **KPI Data Source Selection** builder displays a summary of the data source settings.



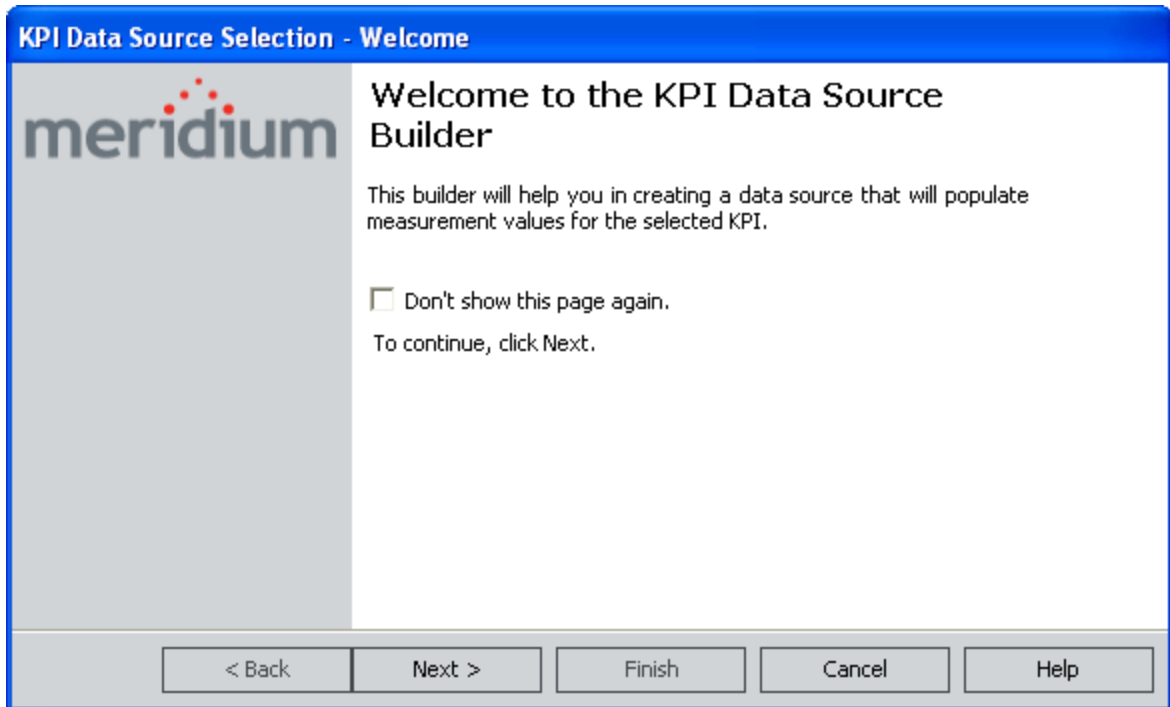
7. Review the settings for the KPI data source. The current entries are listed and can be changed by using the **Back** button to navigate to the step that you want to change. To close the Builder, click the **Finish** button.

The data source is saved to the KPI.

Using a Meridium APM Query for a Data Source

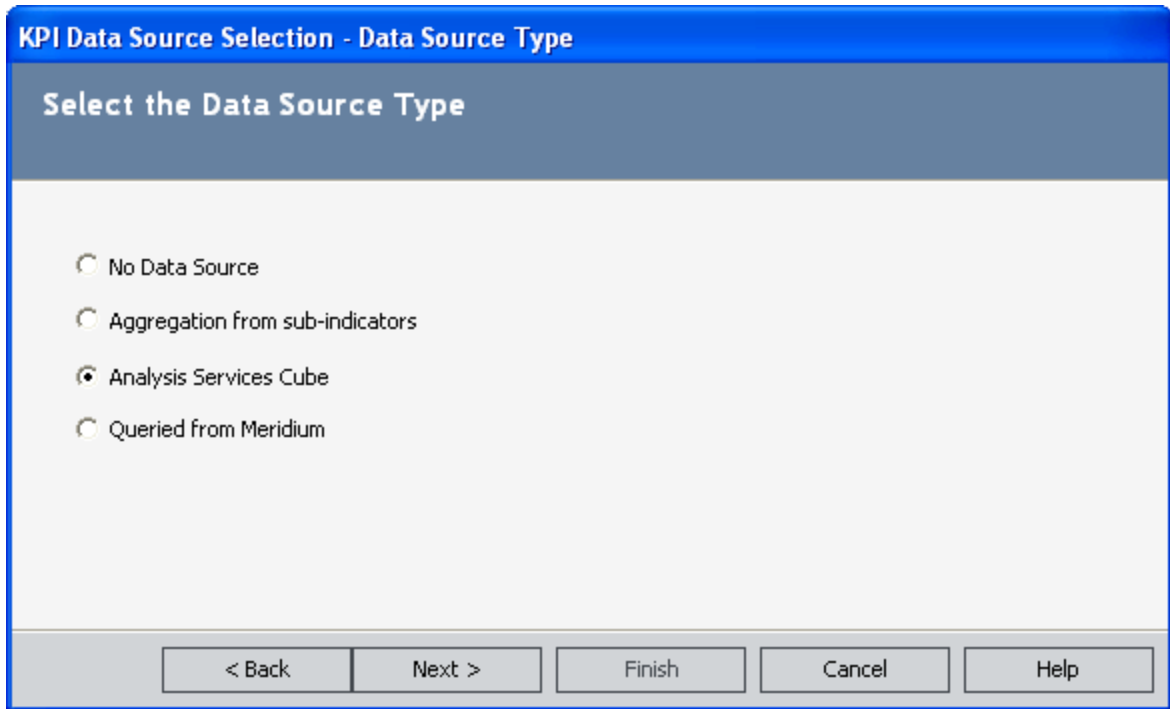
1. On the **KPI Editor** page, on the **Selected KPI** menu, click the **Select Data Source** link.

The **KPI Data Source Selection** builder appears, displaying the Welcome screen.

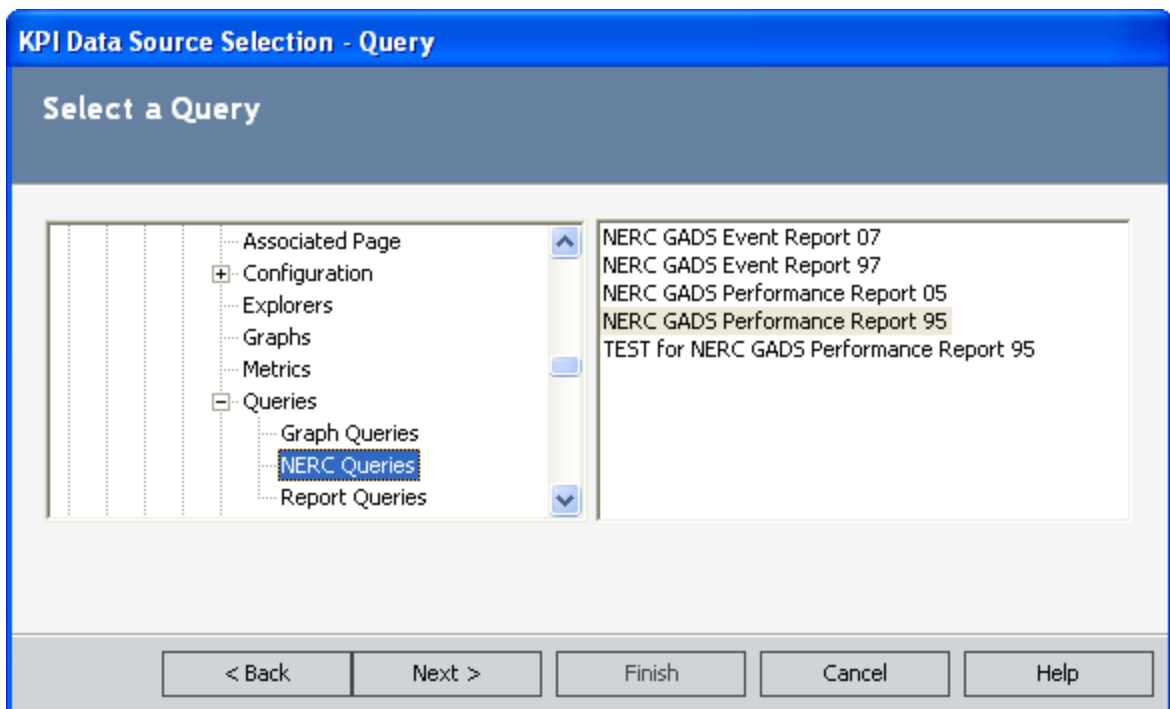


2. Click the **Next** button.

The **Data Source Type** screen appears.



3. Select the **Queried from Meridium APM** option, and click the **Next** button.
The **Query** screen appears.



4. In the hierarchy on the left, which mimics the Meridium APM Catalog structure, select the folder containing the query you want to use to build the KPI.
5. In the list on the right, select the query that you want to use.
6. Click the **Next** button.

The **Mapping** screen appears.

KPI Data Source Selection - Mapping

Specify Query Mappings

Measurement Date Reporting Date

Measurement Value Available Hrs

Critical Value

Target Value

Stretch Value

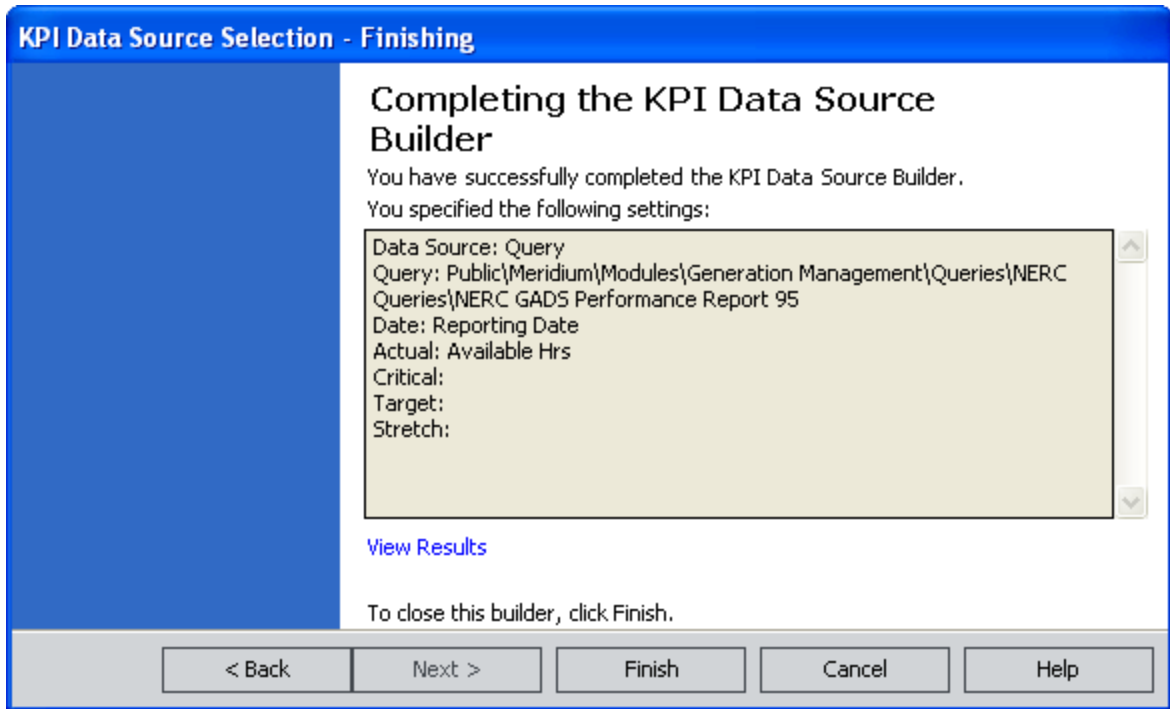
< Back Next > Finish Cancel Help

7. In each list, select an appropriate field from the query. For example, in the **Measurement Date** list, you would select a field from the query that represents the measurement date. Note that the **Measurement Date** list contains a list of only date fields in the query.

The remaining lists contain only numeric fields from the query. Note also that after you select a numeric field in one of the lists, that field will not be available for selection in the remaining lists.

8. Click the **Next** button.

The **Finishing** screen appears, displaying a summary of the data source settings.



9. Review the settings for the KPI data source. The current entries are listed and can be changed by using the **Back** button to navigate to the step that you want to change. To close the builder, click the **Finish** button.

The data source is saved to the KPI.

About KPI Scores

When a KPI is created, it is automatically assigned a score. A score is a normalized value between 0.0 and 1.0 representing the relative strength of the Actual Value. The formula is either:

- **$(\text{Actual Value} - \text{Worst Value}) / (\text{Best Value} - \text{Worst Value})$**

If the Best Value > Worst Value

-or-

- **$(\text{Actual Value} - \text{Best Value}) / (\text{Worst Value} - \text{Best Value})$**

If the Best Value < Worst Value

The closer the score is to 1.0, the higher the strength of the Actual Value.

Scores are useful when comparing measures whose values cover a wide range. It becomes difficult to work with such vastly different numbers, but working with scores allows you to compare relatively close numbers. For example, when comparing ten Actual Values that range from 20 to 500, the gap is almost too large to manage. When you compare the scores of the measures, however, you only have to examine numbers between 0.0 and 1.0, thus making it easier to make comparisons and conclusions.

Normally, the score is calculated using the Actual Value, Best Value, and Worst Value of the current KPI, as indicated in the specified equations. If the **Aggregate Score Only** option is selected in the **KPI Builder**, or the **Has Score** check box is selected in the KPI Designer, however, the Actual Value will not be populated, and the Actual, Target, Critical, and Stretch Values will not be displayed on the Trend Chart or Trend Data. Instead, only the Score will be displayed for that KPI by aggregating scores of its sub-indicators using the selected aggregation function (i.e., Sum, Average, Weighted Average, Minimum, or Maximum). Therefore, you should select only the **Aggregate Score Only** option or the **Show Score Only** check box for a KPI that has one or more KPIs.

Viewing a KPI Score

Via the **Show Score Only** check box on the **KPI Editor** page, you can choose to view a KPI score instead of Actual, Target, Critical, and Stretch Values in the trend chart and trend data sections of the **View KPI** page.

To view a KPI Score:

1. On the [KPI Editor page](#), select the **Show Score Only** check box.
2. On the **Selected KPI** menu, click the **Viewer** link.

The KPI is displayed on the **View KPI** page and only the score is displayed on the trend chart, trend data, and dial. Note that if the **Show Score Only** check box is not selected, the trend chart, trend data, and dial also display the actual values for the given time period.

Note: If you want to display the associated data in the dial, click a score bar in the chart.

Modifying the Collection Frequency

The frequency determines how often measurements are collected for a given KPI. The collection frequency is set when the KPI is created, but you can modify it if desired. For example, if you were measuring profit, you may want to collect profit figures and set the collection frequency as monthly when you create the KPI. If you determine after several collections that your profit is steadily decreasing, you may want to measure it more frequently (e.g., biweekly or weekly).

To change the collection frequency:

1. On the **KPI Editor** page, on the **Selected KPI** menu, click the **Change Frequency** link.

The **KPI Frequency** dialog box appears.

2. Select the frequency for collections of KPI measurements. Measurements can be conducted daily, weekly, monthly, or yearly. The default frequency for a new KPI is every month on the first day of the month. Select the check box next to the desired option.
 - **Daily:** Measurements will be taken X number of days apart, as indicated by the value you select in the **Every __ day(s)** list. For example, selecting 5 specifies that measurements will be taken every 5 days. If you choose to take measurements daily, the default frequency is every day.
 - **Weekly:** Measurements will be collected every X weeks, as indicated by the value that you select in the **every __ week(s)** list. For example, selecting 13 specifies that measurements will be taken every 13 weeks. Measurements

will be taken on the day of the week selected in the **Each** list. If you choose to take measurements weekly, the default frequency is each Sunday of every week.

- **Monthly:** Measurements will be taken every X months, as indicated by the value that you select in the **Every__ month(s)** list. For example, selecting 3 specifies that measurements will be taken every three months. The value in the **on day __ of the month** list specifies the day of the month on which the measurements should be taken. If you choose to take measurements monthly, the default frequency is every month on the first day of the month.
- **Yearly:** Measurements will be taken every X year, as indicated by the value that you select in the **Every __ year(s)** list. For example, selecting 2 specifies that measurements will be taken every two years. The value in the **on** list specifies the month of the year and the day of the month on which the measurements should be taken. If you choose to take measurements yearly, the default frequency is every year on the first day of the first month.

Note: The time interval should match the [frequency by which measures will be updated](#) if you want an [email message to be sent](#) the day that measures are updated and actual values are not populated according to the date defined in the collection frequency.

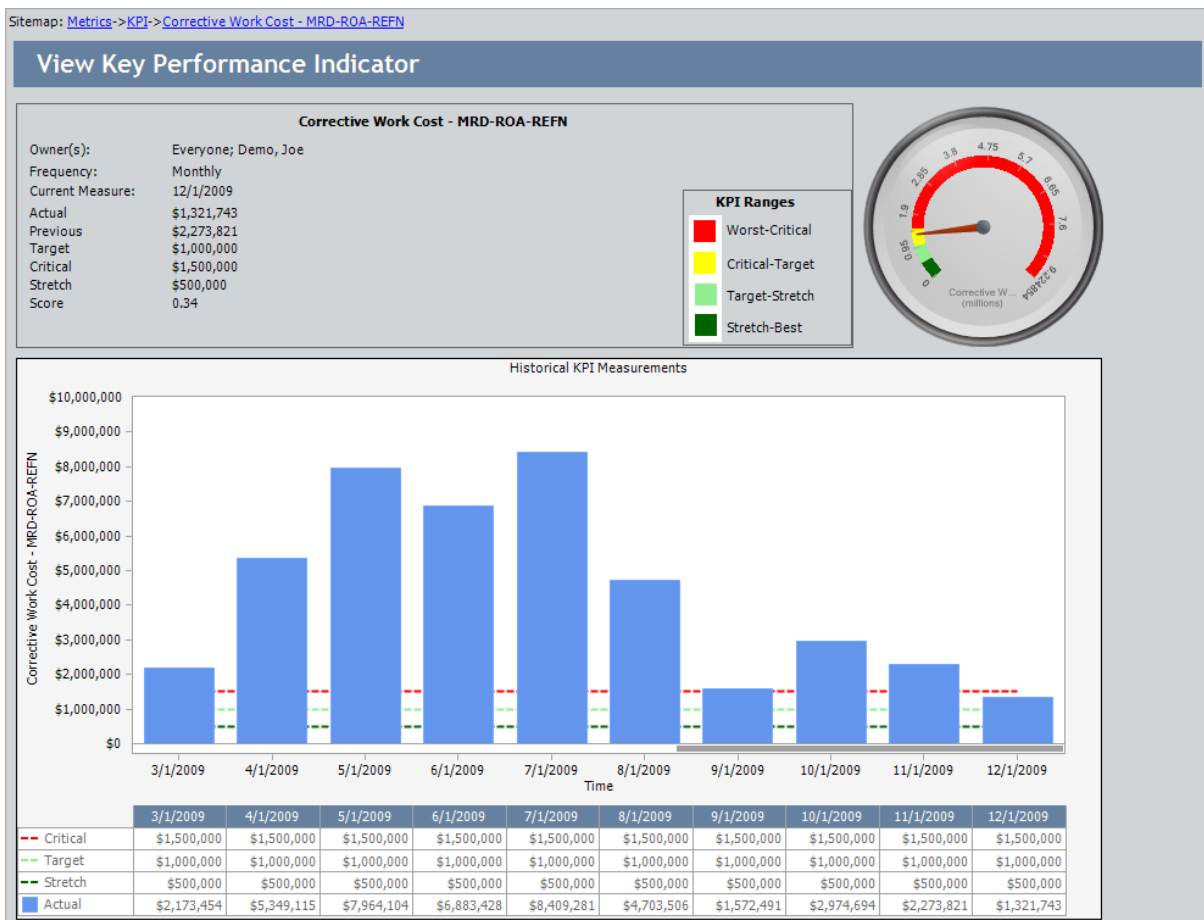
3. Click **OK**.

Your changes are saved.

About the KPI Number Format

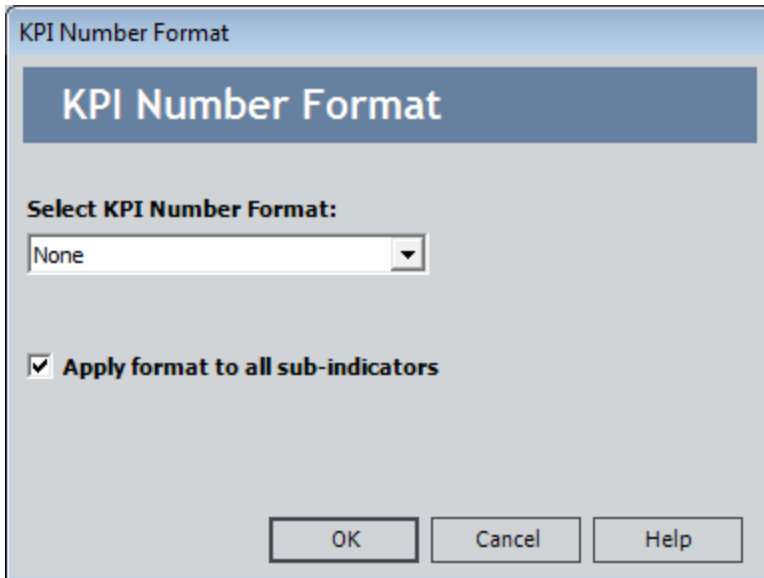
The Metrics and Scorecards module offers an option that allows you to manually specify the format of numeric values in KPIs. For each KPI, you can define a number format that is appropriate for the type of data in that KPI. The format that you define will be applied anywhere numeric values are displayed in the KPI. The same number format will also be used for displaying numeric values in any [Scorecards that include that KPI](#).

For example, if you specify that numeric values in a KPI should be displayed as *currency*, when you view the KPI on the **View KPI** page, the numbers might be formatted as shown in the following image.



This is just one example. The KPI number format feature gives you flexibility in controlling how numbers will be displayed by providing various pre-defined options and a custom format option that lets you define any numeric format supported by the .NET Framework.

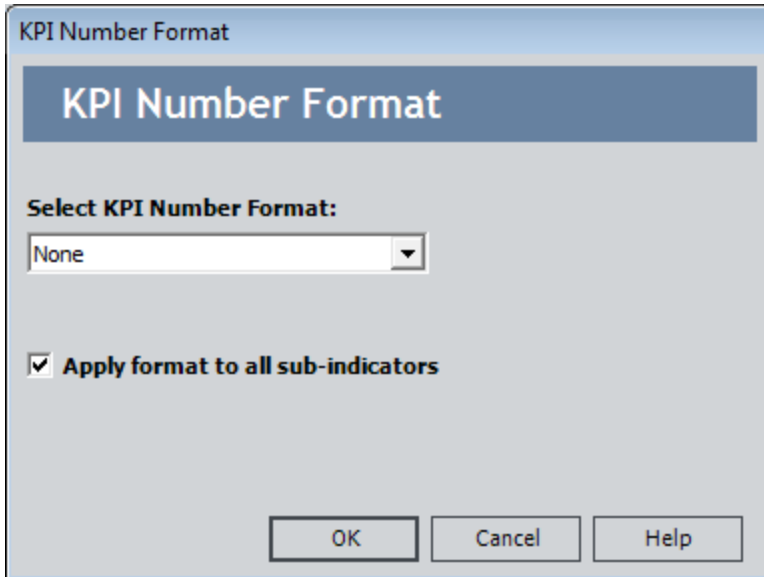
For new KPIs, you can [configure the number format via the KPI Builder](#). For existing KPIs, you can [configure the number format for the KPI Number Format dialog box](#), which is accessible from the **KPI Editor** page.



When you modify the number format for an existing KPI, you can [choose whether to apply that format to the sub-indicators that exist for that KPI](#). If you choose not to apply the number format to sub-indicators, that format will be applied only to the parent KPI. If you do choose to apply the number format to sub-indicators, any child KPIs will be updated to use the same number format as the parent.

Available Number Formats

When you create a new KPI, you can [define the format for numeric values via the KPI Builder](#). Similarly, you can [modify the number format for existing KPIs](#) via the **KPI Number Format** dialog box. The same options are available in either case and can be selected from the Select KPI Number Format list.



You can choose from the following number formats:

- **None:** Applies no format rules to numeric values.
- **Currency:** Specifies that numeric values will be formatted as currency, according to the Windows Regional Options of the computer on which the Meridium APM Framework application is running and the number of digits past the decimal that you specify. When you select this option, the example that appears on the **KPI Number Format** dialog box uses the currency symbol associated with the Windows Regional Options of the computer from which the Meridium APM Framework application is being run.
- **Fixed Digits After Decimal Point:** Specifies that numeric values will always be displayed using a fixed number of digits to the right of the decimal point, as defined by the number selected in the list to the right of the **Select KPI Number Format** list. The thousands separator will not be displayed when this format is selected.
- **Scientific:** Specifies that numeric values will be formatted using scientific notation, where the number selected in the list to the right of the **Select KPI Number Format** list indicates the number of decimal places that will be displayed to the right of the decimal in the significand.
- **General:** Specifies that numeric values will be displayed in fixed or scientific notation, whichever is shorter.
- **Numeric:** Specifies that the thousands separator will be displayed. Additionally,

the number selected in the list to the right of the **Select KPI Number Format** list defines the number of digits that will appear to the right of the decimal.

- **Percent:** Specifies that the field will be formatted as a percentage, including multiplying the base value by 100 and including a percent sign (%). Additionally, number selected in the list to the right of the **Select KPI Number Format** list will the number of digits that will appear to the right of the decimal.
- **Custom Format:** Allows you to specify a custom number format. When you select this option, a text box will appear to the right of the **Select KPI Number Format** list, where you can type the desired format. You can specify any format supported by the .NET Framework, using the appropriate syntax. Details on the syntax for custom formats are not provided in this documentation but can be obtained from Microsoft. The Meridium APM system does not validate custom formats to determine whether or not they can be interpreted by the system or will have the desired effect.

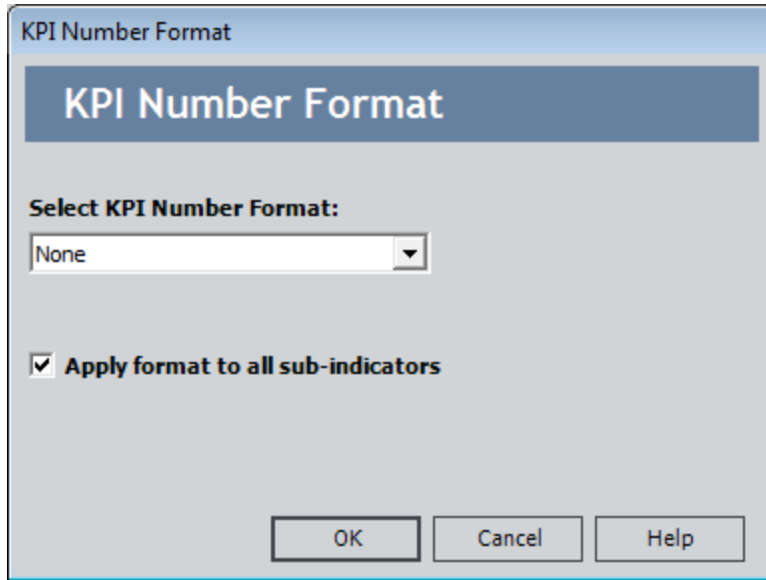
When you specify a number format, either by selecting one of the pre-defined formats or defining a custom format, an example will be provided to indicate the effect that the format will have on numeric values. You can use the example as a guide to determine whether you have chosen the appropriate format. The example, however, is just a guide. After you modify the number format, you will likely want to save your changes and then view the numeric fields in the KPI to determine whether your changes had the desired effect.

Modifying the Number Format for a KPI

To modify the number format of a KPI:

1. On the **KPI Editor** page, on the **Selected KPI** menu, click the **Edit Number Format** link.

The **KPI Number Format** dialog box appears.



2. In the **Select KPI Number Format** list, [select the desired number format](#).
3. If you want to apply the selected number format to sub-indicators of this KPI, *select* the **Apply format to all sub-indicators** check box.

Note: This option is enabled only if the current KPI is linked to one or more sub-indicators.

4. Click **OK**.

The **KPI Number Format** dialog box closes.

5. On the **Common Tasks** menu, click the **Save KPI** link.

Your changes are saved, and the number formatting is applied. You can validate the number formatting by reviewing the numeric values in the Target, Critical, Stretch, Best Value, and Worst Value fields on the **KPI Datasheet** section of the **KPI Editor** page. The number format will be applied to all numeric fields wherever numbers are displayed for the KPI.

How Number Formats Are Applied to KPIs

When you define a number format for a KPI, information about that format is stored in the Datasources (MI_KPI_DATAS_TX) field of the KPI record. Within the KPI family, baseline rules exist on the following fields to format values in those fields according to the rules that exist in the Datasources (MI_KPI_DATAS_TX) field:

- Alert Value
- Best Value
- Critical
- Stretch
- Target
- Worst Value

In other words, number format rule themselves do not exist within these fields themselves. But these fields contain rules that will *apply* any number formatting that has been defined. Because this feature is implemented via baseline rules, the number format will not be applied if you have defined custom rules for any of these fields.

Defining Alerts for KPIs

You can set up email alerts to inform specific users when a KPI's Actual value falls within a certain range or is not populated according to the [collection frequency](#) schedule. If you update a KPI and its measurements meet the criteria specified, an Alert record is created, and an email message will be sent. The benefit of configuring email alerts is that users will be notified of the situation as soon as possible so that appropriate actions can be taken.

To set up email alerts for a KPI:

1. On the [KPI Editor page](#), on the **Selected KPI** menu, click the **Configure Alerts** link.

The **Alert Configuration** dialog box appears.

Alert Configuration

Configure KPI Alert

Alert Conditions

- The actual value is worse than the critical value.
- The actual value is better than the stretch value.
- The actual value is worse than
- The value was not automatically updated as scheduled.

An alert will include the following information:

An alert has been triggered while updating KPI {KPI_NAME} for the period ending on {MEASURE_DATE}. The value of {ACTUAL_VALUE} meets the following criteria:

The alert will be sent to the following recipients:

2. Select the desired alert options for the KPI. Note that alerts are not triggered unless measurements are updated. You can choose to send an alert when:
 - The Actual value is worse than the Critical value.
 - The Actual value is better than the Stretch value.
 - The Actual value becomes worse than a specified value. Depending on the direction of the scale, the Actual value must be either higher or lower than

the specified value to trigger an alert. For example:

- On a scale where the Stretch value is 25 and the Critical value is 100, higher values are worse than lower values. In this case, an alert will be generated when the Actual value is greater than the specified alert value. For example, if you set the alert value to 75, an alert will be triggered whenever the Actual value is greater than 75.
- On a scale where the Stretch value is 100 and the Critical value is 25, lower values are worse than higher values. In this case, an alert will be generated when the Actual value is less than the specified alert value. For example, if you set the alert value to 75, an alert will be triggered whenever the Actual value is less than 75.
- The Actual value is not populated [as scheduled](#). For example, if an Actual value is scheduled to be entered manually or populated automatically based on an Analysis Services query on January 25, 2006 at 1:00 p.m., and the KPI measures are updated after 1:00 p.m. on January 25, 2006, but the Actual value is not populated, an email message will be sent to the specified recipient(s).

To make sure an email message is sent the same day an update is performed and an Actual value meets the specified alert condition, you should define an [update schedule](#) that matches the [collection frequency](#). This ensures that the Meridium APM system will know immediately when an Actual value meets an alert condition. If, on the other hand, you schedule Actual values to be populated on one schedule, such as weekly, but you update the measurements on a different schedule, such as monthly, and the Actual value meets the alert condition the first week of the month, the Meridium APM system will not know that the alert condition has been met until you run the update at the end of the month. In this case the email message would not be sent in time to alert the recipient of the problem.

3. In the section **An alert will include the following information**, type the message that the recipient(s) will receive about the measurement. To create a message with specific details, use the following syntax in the message:

- **{KPI_NAME}**: Indicates the name of the KPI.
- **{MEASURE_DATE}**: Indicates the measurement date on which the condition occurred.
- **{ACTUAL_VALUE}**: Indicates the actual value of the KPI on the specified measurement date.
- **{TRIGGERED_CONDITIONS}**: Indicates the alert condition that was met on the specified measurement date.

For example, a message could be formatted as follows:

```
An alert has been triggered while updating KPI {KPI_NAME} for
the period ending on {MEASURE_DATE}. The value of {ACTUAL_
VALUE} meets the following criteria: {TRIGGERED_CONDITIONS}
```

When this message is received in an email message, it would read as follows:

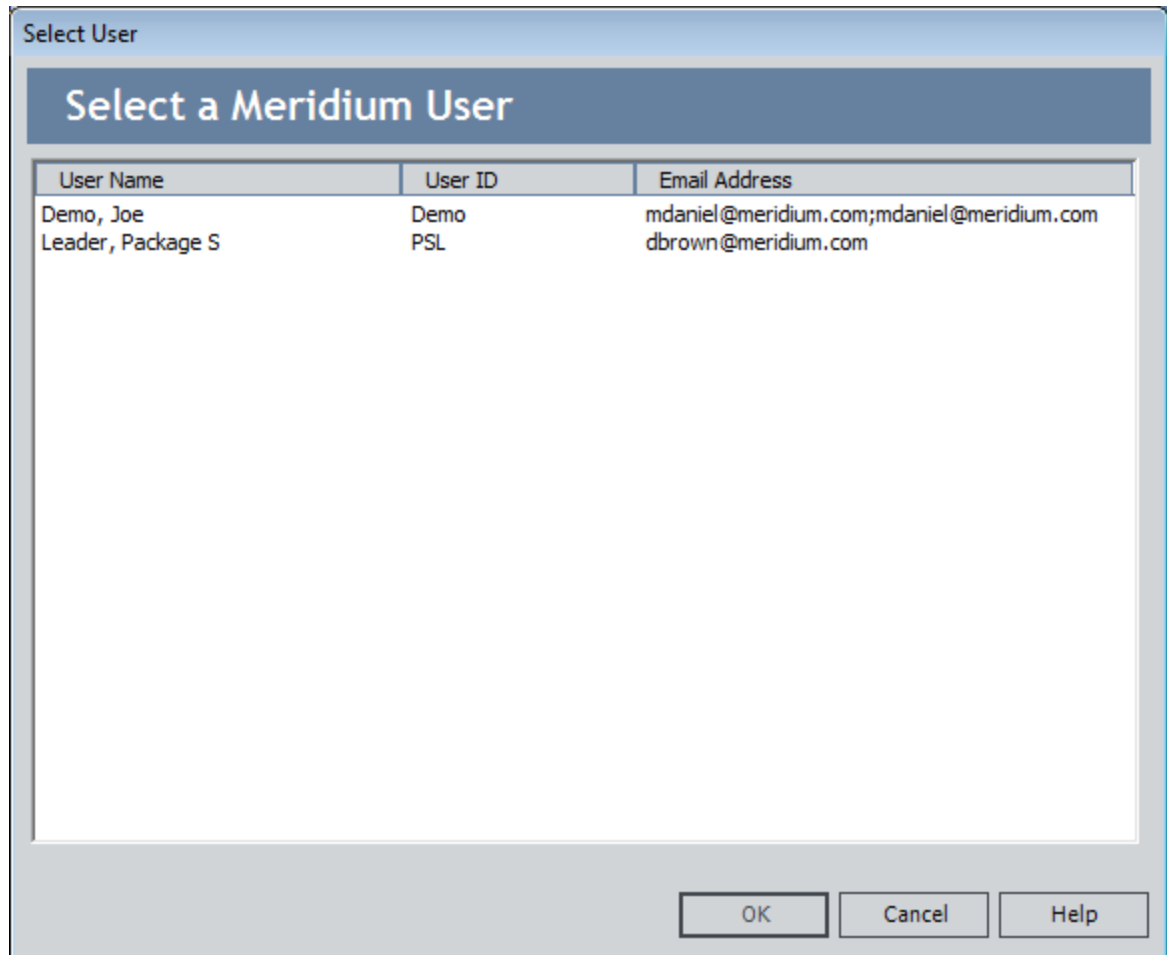
Defining Alerts for KPIs

An alert has been triggered while updating Financial KPI for the period ending on 2/1/2005. The value of 0 meets the following criteria: The value was not automatically updated as scheduled.

Where **Financial KPI** is the name of the KPI, **2/1/2005** is the measurement date on which the Actual value was not populated, 0 is the Actual value that appeared on the specified measurement date, and **The value was not automatically updated as scheduled** is the alert condition that was met.

4. Click the **Add** button to insert a list of email recipients.

The **Select User** dialog box appears.



5. Select the desired Security User, and click **OK**.

Note: The **Select User** dialog box contains a list of Security Users who have an email address defined. Security Users that do not have an email address will not appear in the list. If you want to send an alert to a Security User that does not appear in the list, you must first define a valid email address for that user.

The selected users are added to the list in the **Alert Configuration** dialog box.

6. If desired, click the **Remove** button to remove any email recipients.
7. Click **OK**.

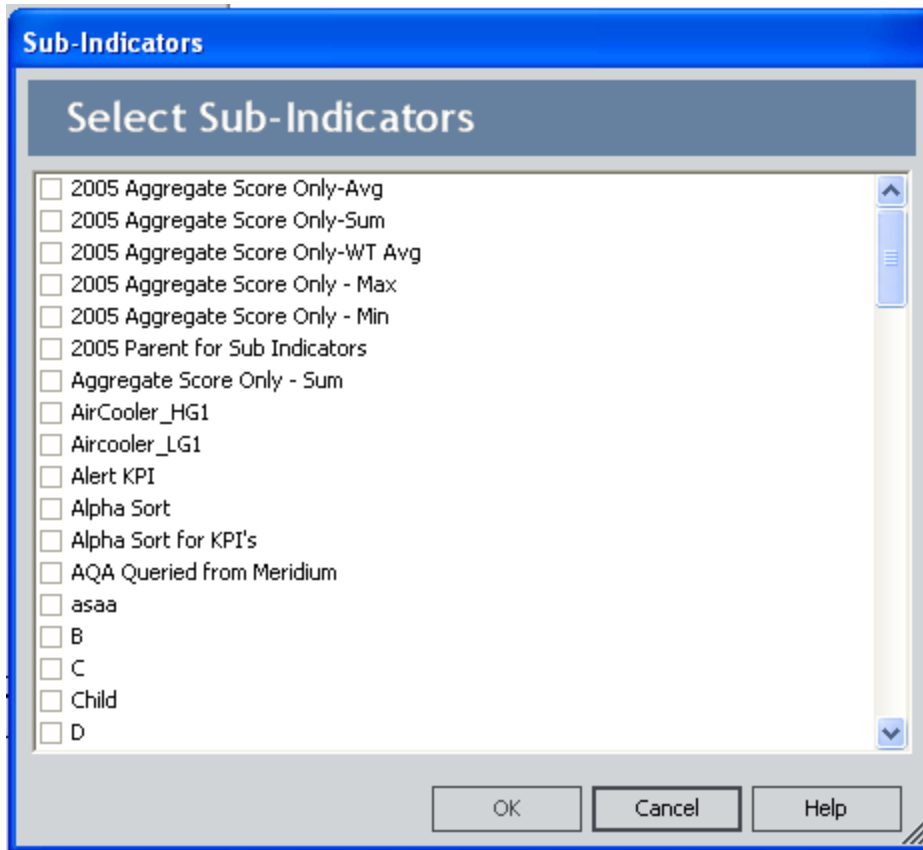
The values you defined in the **Alert Configuration** dialog box are saved to [fields in the KPI record](#). If you update the KPI and its measurements meet the alert conditions you defined, an Alert record will be created, and an email message will be sent to the specified recipient(s).

Selecting Sub-Indicators for a KPI

To select sub-indicators for a KPI:

1. On the **KPI Editor** page, on the **Selected KPI** menu, click the **Sub-Indicators** link.


The **Sub-Indicators** dialog box appears, displaying a list of KPIs that are not currently associated with a parent.



2. On the **Sub-Indicators** dialog box, select the check box next to each sub-indicator that you want to include in the KPI.
3. Click **OK**.
Your selections are saved, and the dialog box closes.

Adding Reference Documents to a KPI

Reference Documents are a standard feature available throughout the Meridium APM Framework and provide you with the option of associating files or websites with other records in the Meridium APM database. Via the **KPI Editor** page, you can optionally add a Reference Document to a KPI, which creates a link between the Reference Document record and the KPI record and makes the associated file available when you are working with that KPI.

 **Note:** If you add a Reference Document to a parent KPI, it will be linked automatically to the sub-indicators of the parent KPI. Note that if you add a Reference Document to only a sub-indicator, the Reference Document record will be linked only to that sub-indicator and not to the parent KPI or other sub-indicators.

To link a Reference Document record to a parent KPI:

1. On the **KPI Editor** page, select the parent KPI.
2. On the **Common Tasks** menu, click the **Documents** link.

The **Reference Documents** window appears, where you can manage Reference Documents for the KPI as you would for any other record.

About Updating Measurements

Measurements can be scheduled using the following methods:

- [Manually](#).
- [Automatically through scheduled execution](#).

When measurements are updated via either of these methods, the Meridium APM system will:

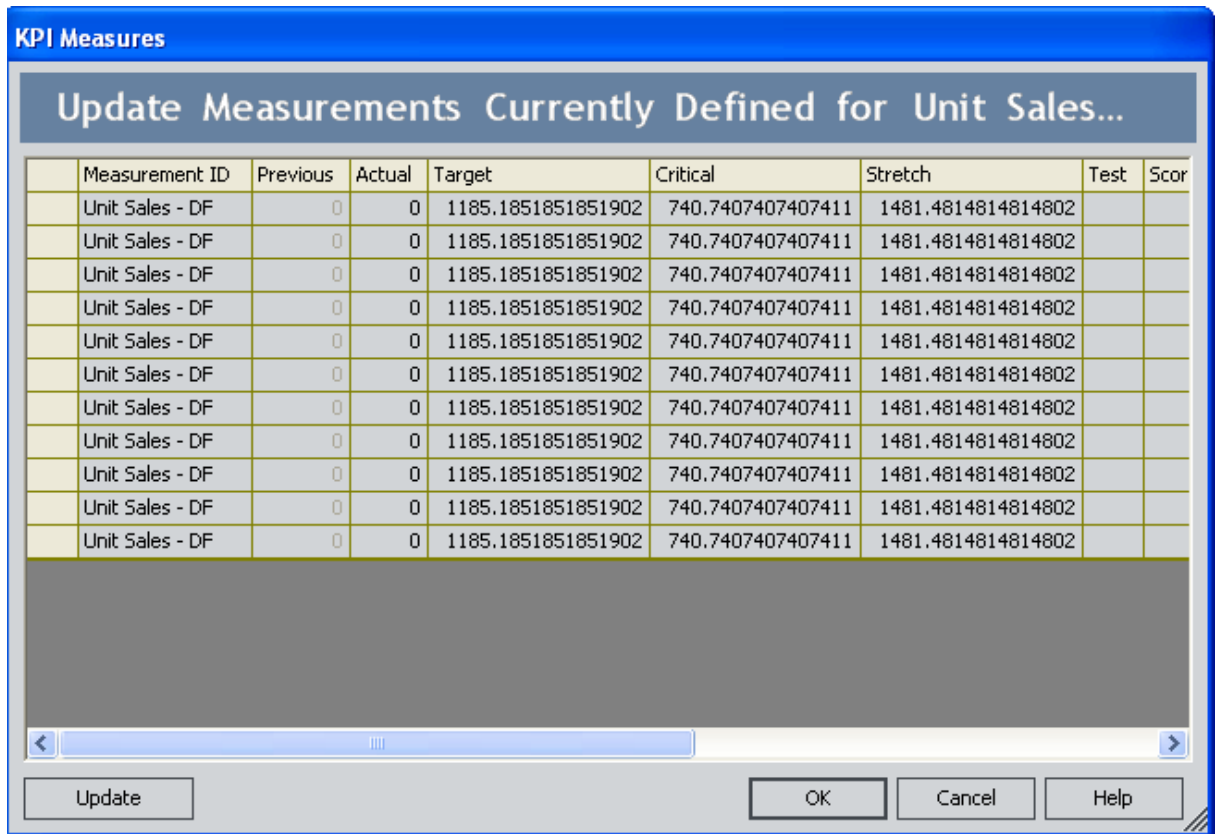
- Create KPI Measurement records and link them to the current KPI record.
- Use the values in following KPI fields to populate the KPI Measurement record:
 - KPI [collection frequency](#)
 - Start Date
 - End Date
 - Last Modified Date
- Check the previous KPI Measurement record *values*, such as the Target value, to determine if they have been modified since the last update. If any of the values for a KPI Measurement record have changed since you last updated the measurements, the Meridium APM system will automatically adjust the values in the KPI Measurement records to contain the most current values.

Manually Updating Measurements

To update the measures associated with a KPI:

1. On the [KPI Editor](#) page, on the **Selected KPI** menu, click the **Edit Measures** link.

The **KPI Measures** window appears.



2. Click the **Update** button to display all of the KPI Measurement records that are linked to the current KPI record.
3. Modify the measures as desired. If a value is calculated based on an aggregation function, the value is disabled and cannot be modified. For instance, if the Actual value is calculated based on a Sum aggregation function, the **Actual** cell is disabled.

Hint: You can copy a value by right-clicking the cell and selecting **Copy** from the shortcut menu. Then, right-click another cell in the grid and click **Paste** to paste the value. You can also use the **Delete** option on the shortcut menu to delete a KPI Measurement record. The **Delete** option is not available, however, when focus is on a particular cell.

4. Click **OK**.

Your changes are saved, and the **KPI Measures** window closes. The updated values will now appear on the **View KPI** page.


Note: If you delete a measure for a sub-indicator KPI, the parent KPI measure will be updated automatically.

Automatically Updating Measurements

About Automatic Updates

KPI measurements can be updated automatically according to a schedule and frequency defined within the KPIs themselves. You can define the desired schedule for each KPI via the **KPI Update Schedule** dialog box, which you can access from the **Key Performance Indicators** page and the **KPI Editor** page.

Automatic updates are typically performed on KPIs built from Analysis Services or aggregated from sub-indicators. To avoid confusion and eliminate the possibility of reviewing and analyzing out-of-date information, you should schedule an update of KPI measurements at the same time that measurements are scheduled to be taken. For example, if you are going to collect measurements every first day of each month, you should also schedule the updates to run every first day of each month.

 **Note:** The execution of automatic updates is dependent on a [master scheduled item that must be created via the Meridium APM Schedule Manager](#). This scheduled item defines the minimum frequency at which individual KPIs can be updated. You will not be allowed to schedule individual KPIs to be updated more often than the master scheduled item allows.

KPIs can be scheduled for automatic updates one time or on a recurring basis. The following table describes the schedules by which you can configure the KPI measurements to be updated.

Frequency	Example	Default
Every x number of minutes.	Every thirty minutes.	Every minute.
Every x number of days.	Every two days.	Every day.
Every x day of every x number of weeks, where you define the day of the week.	Every Sunday of every two weeks.	Every Sunday of every week.
Every x month on day x of that month.	Every three months on day 10 of the month.	Every month on day 1 of the month.
Every x year on x date, where you define the date.	Every two years on March 15 of that year.	Every year on the current day of that year. For example, if the current date is January 9, the default value will be every year on January 9.


Defining the Schedule for Updates


To schedule the automatic update of KPI measurements:

1. On the **Key Performance Indicators** page, select the KPI(s) that you want to update.
2. On the **Selected KPI** menu, click the **Schedule Update** link.

The **KPI Update Schedule** dialog box appears. If you [select multiple KPIs](#), or a KPI that is part of a hierarchy, the dialog box will contain a list of the selected KPIs.

The screenshot shows the 'KPI Update Schedule' dialog box for 'Schedule Unit Sales - Lebanon'. It includes a 'Data availability delay' field set to 0 days, a 'Last Executed' field set to 'Never', and a 'Next Execution' field set to '2/17/2012 12:00 AM'. Below these fields is a 'Recurring Item' section with several options for how often the update occurs: 'Every 1 minute(s)', 'Every 1 day(s)', 'Each Sunday every 1 week(s)', 'Every 1 month(s) on day 1 of the month', and 'Every 1 year(s) on February 17'. At the bottom of the dialog are buttons for 'Save', 'Delete', 'Close', and 'Help'.

3. If the data will not be available for a given period of time, you can delay the update by selecting the delay period in the **Data Availability Delay** field.
4. If desired, change the date of the next execution. You can view the next scheduled execution by looking at the **Next Execution** field. To change this date, click the  button and select a date.

 **Hint:** Setting the date here and not selecting the **Recurring Item** check box is how you schedule a one-time update. Additionally, you can set the next execution date here and select the **Recurring Item** check box if you want the recurring schedule to begin on a date other than the one that is currently displayed.

5. If the item should be updated on a regular basis, click the **Recurring Item** check box, and then select the frequency of the update.

Note: If you schedule a KPI to execute more frequently than the master KPI schedule item, when you click the **Save** button, a message will appear stating that the selected frequency conflicts with the master KPI, and an administrator must [change the frequency of master KPI scheduled item in Schedule Manager](#) in order for the KPI to be scheduled at the selected frequency.

7. Click **OK**.

The schedule is saved. The updated values will now appear on the **View KPI** page and the **Key Performance Indicators** page.

Scheduling an Automatic Update for Multiple KPIs

To schedule the automatic update of multiple KPIs:

1. On the **Key Performance Indicators** page, select the KPIs that you want to update.
2. On the **Selected KPI** menu, click the **Schedule Update** link.

The **KPI Update Schedule** dialog box appears.

KPI Update Schedule

Schedule Selected KPIs

At least one of the selected KPIs is part of a hierarchy. Changes to the selected KPI will change the schedule for all other KPIs in that hierarchy.

Selected KPIs:

- Unit Sales - Mexico
 - Unit Sales - DF
 - Aggregate Score Only-Max
 - Score Only-Max1
 - Score Only-Max2
 - Score Only-Max3
 - Unit Sales - Guerrero
 - Unit Sales - Jalisco
 - Unit Sales - Guadalajara
 - Unit Sales - Mexico
 - Unit Sales - Mexico City
 - Aggregate Score Only-Avg
 - Score Only-Avg1
 - Score Only-Avg2
 - Score Only-Avg3
 - Unit Sales - Milwaukie

Data availability delay: 0 days

Last Executed: Never

Next Execution: 1/1/0001 12:00 AM

Recurring Item

Occurs:

- Every 1 minute(s)
- Every 1 day(s)
- Each Sunday every 1 week(s)
- Every 1 month(s) on day 1 of the month
- Every 1 year(s) on February 16

Buttons: Save, Delete, Close, Help

Note: If one of the KPIs you selected is part of a hierarchy, a message will appear at the top of the dialog box, stating that any changes you make to that KPI will be saved to all other KPIs in that hierarchy. The **Selected KPIs** section displays both the KPIs you selected and all other KPIs that will be updated as a result of the schedule change.

3. Define the desired schedule, just as you would for a single KPI.
4. Click **OK**.

The schedule is saved. The updated values will now appear on the **View KPI** page.

Disabling Automatic Updates

The following instructions provide details on removing the schedule information from a KPI. Removing the schedule from a KPI will stop that KPI from being updated automatically according to the schedule that was previously defined.

To remove a schedule from a KPI:

1. On the **Key Performance Indicators** page, select the KPIs for which you want to remove a schedule.
2. On the **Selected KPI** menu, click the **Schedule Update** link.

The **KPI Update Schedule** dialog box appears, displaying the current update schedule for that KPI.

3. Click the **Delete** button.

Note: This button only deletes the schedule information from the KPI. It does not delete the KPI itself.

A confirmation message appears, asking if you really want to unschedule the KPI.

4. Click the **Yes** button.

The schedule information is removed.

Deleting a KPI

The following instructions provide details on deleting a KPI from the **Key Performance Indicators** screen. Note that you can also delete a KPI on the **View KPI** page and the **KPI Editor** page.

To delete a KPI:

1. In the list on the [Key Performance Indicators screen](#), select the row of the KPI that you want to delete.
2. In the **Common Tasks** menu, click the **Delete** link.
A confirmation message appears, asking if you really want to delete the KPI.
3. Click the **Yes** button.

The KPI record is deleted from the database.

Note: If you delete a sub-indicator KPI, the measures for the parent KPI will be updated automatically.

Overview of Scorecards

A Scorecard is a tool designed to monitor various aspects of your organization's performance. Scorecards allow you to monitor performance from a number of different perspectives, based on specific objectives and KPI's your organization has identified. A complete Scorecard will contain multiple instances of the following items:

- **Perspectives:** Areas around which you want your company to focus. An example of a perspective might be *Cost Optimization*.
- **Objectives:** Specific goals towards which you want the company and its employees to strive. Each objective is categorized under a specific perspective. An example of an objective under the Cost Optimization perspective might be *to optimize day-to-day tasks*.
- **KPIs:** Indicators that measure the company's ability to meet its objectives. Each KPI is categorized under a specific objective. An example of a KPI that measures the company's ability to optimize day-to-day tasks is one that measures *the percent of equipment that has a new or reviewed Asset Strategy*.

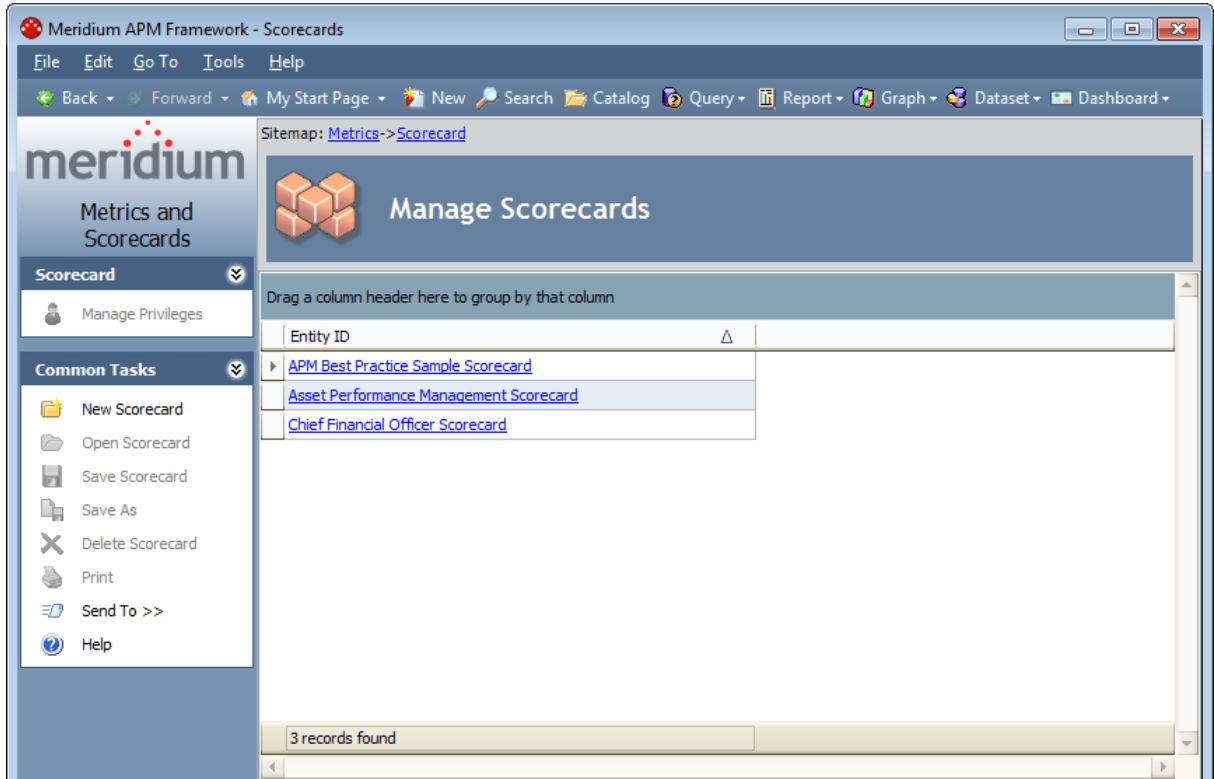
You can design a Scorecard using the [Design Scorecard page](#). After a Scorecard has been designed, as data is collected and tracked using the KPIs, you can view a summary of the data on the [View Scorecard page](#).

Accessing a List of Scorecards

To access a list of Scorecards:

- On the **Metrics and Scorecards Start Page**, click the **Manage Scorecards** link.

The [Scorecards page](#) appears.

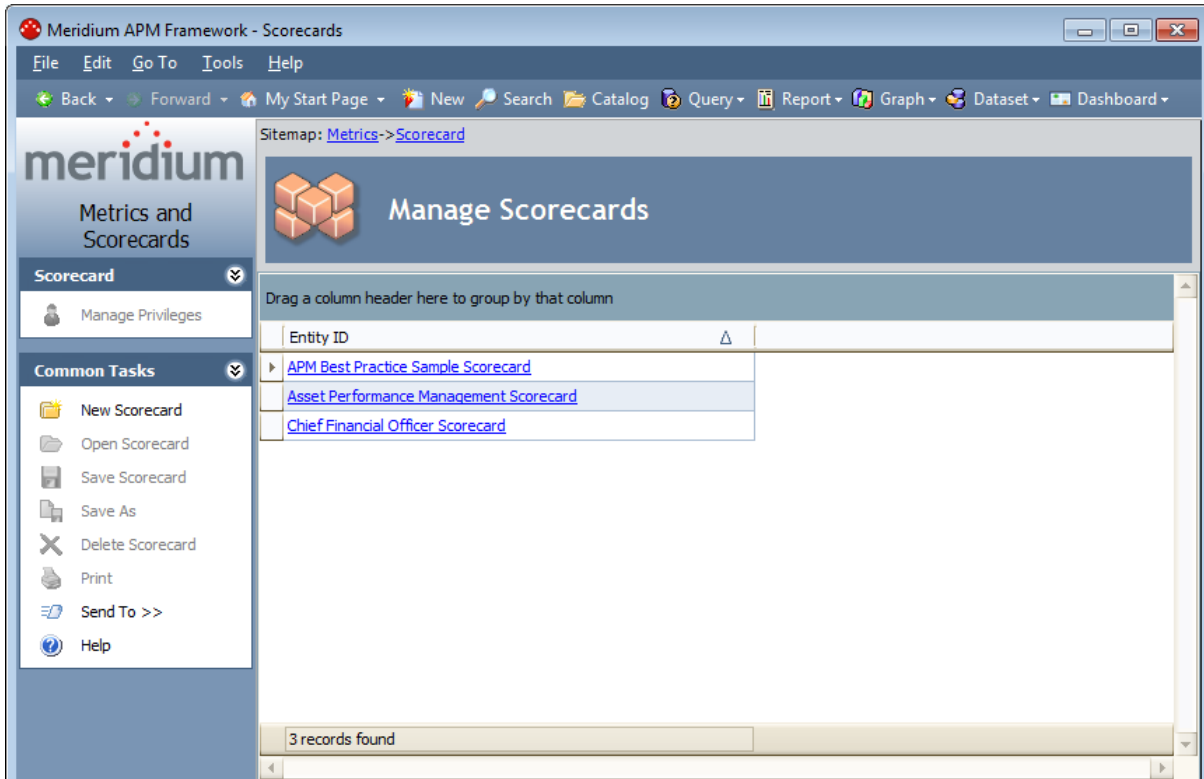


Aspects of the Scorecards Page

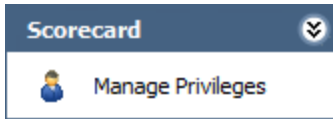
The **Scorecards** page includes a list of Scorecard records that exist in the database. Each Scorecard record is represented by a hyperlink, and the total number of Scorecard records appears at the bottom of the page.

The Entity ID is displayed for each Scorecard record that appears in the grid.

The **Scorecards** page contains two task menus: [Scorecard](#) and [Common Tasks](#).



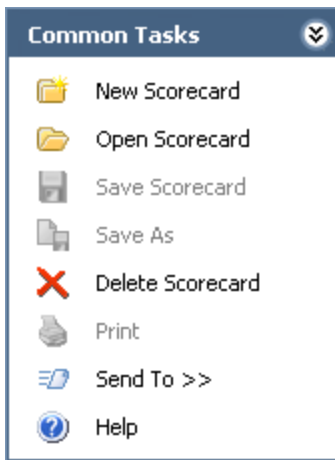
Scorecard Menu



The **Scorecard** menu on the **Scorecards** page contains the following link:

- **Manage Privileges:** Displays the **Manage Privileges** window, where you can [select the users and groups who will have access to the selected Scorecard](#).

Common Tasks Menu



The **Common Tasks** menu on the **Scorecards** page contains the following links:

- **New Scorecard:** Displays the **Design Scorecard** page, where you can [create a new Scorecard Record](#).
- **Open Scorecard:** Displays the **View Scorecard** page, where you can view the selected Scorecard. This link is disabled until you select a row containing a Scorecard record.
- **Save Scorecard:** This link is disabled on the **Scorecards** page.
- **Save As:** This link is disabled on the **Scorecards** page.
- **Delete Scorecard:** Deletes the selected Scorecard record. This link is disabled until you select a row containing a Scorecard record.
- **Print:** This link is disabled on the **Scorecards** page.
- **Send To:** Displays a submenu with options that let you provide a link to the current page on your desktop (create shortcut), in an email message, or on a Home Page.
- **Help:** Displays the context-sensitive Help topic for the **Scorecards** page.

Creating a New Scorecard

To create a new Scorecard record, you can click the **New Scorecard** link on the **CommonTasks** menu on the **Scorecards**, **DesignScorecard**, and **ViewScorecard** pages. A blank Scorecard will appear on the [Design Scorecard page](#). To save the new Scorecard record to the database, you must at least type a name in the **Name** text box, but you can further [design the Scorecard](#) as desired before saving it to the Meridium APM database.

Opening an Existing Scorecard

To open an existing Scorecard:

- On the [Scorecards page](#), in the list of Scorecard records, click the link associated with the Scorecard that you want to view.

The Scorecard appears on the **View Scorecard** page.

	Actual	Previous	Target	Trend	Frequency	Event Start Date
Cost Optimization						
Optimize Day to Day Tasks						
% of Equipment with New or Reviewed Asset Strategy	31.00	28.00	75.00	↑	Monthly	12/1/2009
Optimize Life Cycle Costs						
Avoid Excessive Cost						
Unplanned Maintenance Cost (\$M) -- Rolling 12 Months	43.00	42.00	45.00	↑	Monthly	12/1/2009
Average Corrective Work Cost - MRD-ROA-REFN	3661.34	6890.37	3500.00	↓	Monthly	12/1/2009
Production Assurance						
Avoid Shutdowns and Slowdowns						
Overdue RCA Recommendations	2.00	2.00	3.00	→	Monthly	12/1/2009
Optimize Outage Scope						
Identify and Implement Solutions to Poorly Performing Equipment						
Monthly Cost of Unreliability	2050000.00	2130000.00	1500000.00	↓	Monthly	12/1/2009
Optimize Spare Parts						
Risk Mitigation						
Avoid Incidents (HSE)						
% of Critical Equipment in ACA Program	78.00	76.00	75.00	↑	Monthly	12/1/2009
% of Equipment with Criticality Assessment	92.00	92.00	85.00	→	Monthly	12/1/2009
Maintain Compliance						

From the **View Scorecard** page, you can [view the information in more detail](#). After you open the Scorecard, you can [access the Design Scorecard page](#) to modify the content of the Scorecard.

About the View Scorecard Page

The [View Scorecard page](#) displays a hierarchical view of a Scorecard's perspectives, objectives, and KPIs. On the **View Scorecard** page, you can also see the following values that are stored in the individual KPI records:

- Actual
- Previous
- Target
- Trend
- Frequency
- Measurement Date



On the **View Scorecard** page, you can perform any of the following tasks:

- Click a perspective to view the record in the Record Manager.
- Click an objective to view the record in the Record Manager.
- Click a KPI to view its details on the [View KPI page](#).

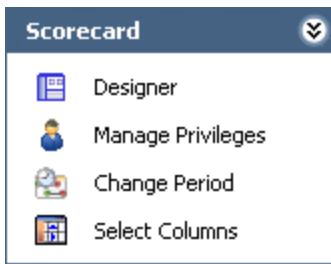
On the **View Scorecard** page, actual KPI values are highlighted according to where the value falls within the values assigned to the worst value, critical value, target value, stretch value, and best value. For example, if an actual value is 10.00, and the target

value is 5.00 and stretch value is 15.00, the value 10.00 would be highlighted in light green, which indicates on the [KPI dial](#) that a value falls between the stretch value and the best value.

The **Previous** column indicates the KPI value at its last measurement date, and the **Target** column indicates the Target value that was assigned when the KPI was created. The **Frequency** column indicates how often measurements are taken, and the **Measurement Date** column displays the date of the most current measurement, which is associated with the actual value displayed in the **Actual** column.

In the **Trend** column, an arrow appears that either points up, down, or sideways. An arrow points up if the actual value is higher than the previous value, it points down if the actual value is less than the previous value, and it points sideways if the actual value is the same as the previous value.

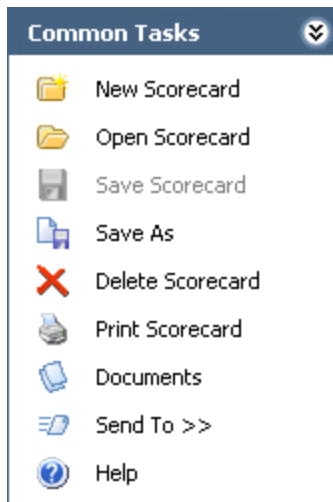
Scorecard Menu



The **Scorecard** menu on the **View Scorecard** page contains the following links:

- **Designer:** Displays the Scorecard on the **Design Scorecard** page. This link is disabled if you do not have Update privileges to the Scorecard family.
- **Manage Privileges:** Displays the **Manage Privileges** window, where you can [select the users and groups who will have access to the selected Scorecard](#). This link is enabled only if you have Update permissions on the Scorecard family.
- **Change Period:** Displays the **Scorecard Period** dialog box, where you can [change the range of dates for the KPI measures](#).
- **Select Columns:** Displays the **Select Visible Columns** dialog box, where you can [select columns to appear in the Scorecard](#) on the **View Scorecard** page.

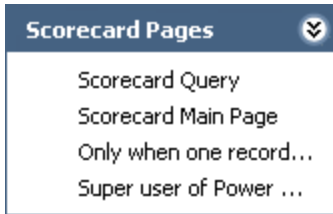
Common Tasks Menu



The **Common Tasks** menu on the **View Scorecard** page contains the following links:

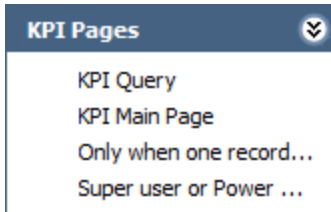
- **New Scorecard:** Displays a blank **Design Scorecard** page, where you can [create a new Scorecard record](#).
- **Open Scorecard:** Displays the **Scorecards** page, from which you can [select a Scorecard record to open](#).
- **Save Scorecard:** Saves a Scorecard record. This link is disabled until you make a change to the Scorecard. This link is always disabled if you do not have Update privileges to the Scorecard family.
- **Save As:** Displays the **Save As** dialog box, where you can save the current Scorecard with a different name or in a different location.
- **Delete Scorecard:** Displays a confirmation, and then deletes the Scorecard record. This link is disabled until you save the Scorecard record. This link is always disabled if you do not have Delete privileges to the Scorecard family.
- **Print Scorecard:** Displays the **Print** dialog box, from which you can print a Scorecard.
- **Documents:** Displays thereference documents associated with the Scorecard record. This link is disabled until you save the Scorecard record.
- **Send To:** Displays a submenu with options that let you provide a link to the current page on your desktop (create shortcut), in an email message, or on a Home Page. If you are creating a new Scorecard record, this link is disabled until you save the Scorecard record.
- **Help:** Displays the context-sensitive Help topic for the **View Scorecard** page.

Scorecard Pages Menu



The **Scorecard Pages** menu on the **View Scorecard** page displays the Associated Pages that have been configured for the Scorecard family.

KPI Pages Menu



The **KPI Pages** menu on the **View Scorecard** page contains the Associated Pages that are configured for the KPI family that is associated with the row that is currently selected in the grid. The menu is dynamic, so the menu label and its links change as you select different rows in the Scorecard grid:

- When you select a KPI Perspective row, the menu is labeled **KPI Perspective Pages** and displays the Associated Pages that are defined for the KPI Perspective family.
- When you select a KPI Objective row, the menu is labeled **KPI Objective Pages** and displays the Associated Pages that are defined for the KPI Objective family.
- When you select a KPI row, the menu is labeled **KPI Pages** and displays the Associated Pages that are defined for the KPI family.

Changing the Scorecard Period

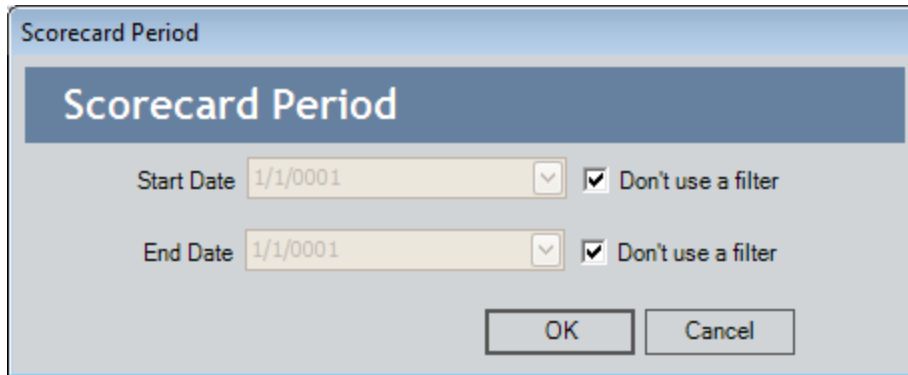
The Scorecard period is the time frame for which you want to view KPI measurements. By default, there is no time frame specified for a new Scorecard. You can, however, specify a start date and end date by which to view measurements. For example, if KPI measurements span from January 1997 to December 1997, and you specify the Scorecard period as January 1998-December 1998, you will not see any measurements on the **View Scorecard** page.

The following instructions assume that the Scorecard is currently displayed on the **View Scorecard** page.

To change the period of a Scorecard:

1. On the **View Scorecard** page, on the **Scorecard** menu, click the **Change Period** link.

The **Scorecard Period** dialog box appears.



2. If you do not want to specify the date(s) by which to filter the measurements, select the **Don't use a filter** check box for the Start Date and End Date. Both check boxes are selected by default when you create a new Scorecard. You can use a filter for one date and not the other, if desired, by clearing the check box.

-or-

If you want to specify the Start Date or End Date, clear the **Don't use a filter** check box, and then type or select the desired date.

3. Click **OK**.

The specified dates are applied, and you see only measurements that fall within the specified time frame.

Example of a Completed Scorecard on the View Scorecard Page

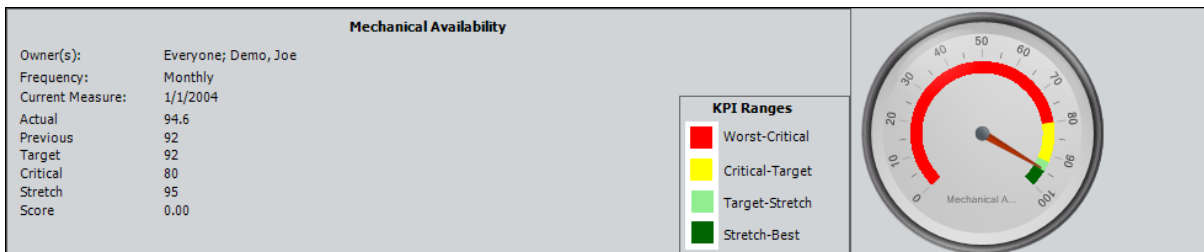
The following image shows an example of a completed Scorecard on the **View Scorecard** page.

View Reliability and Maintenance Scorecard							
	Actual	Previous	Target	Trend	Frequency	Event Start Date	
Process							
Improve Reliability							
Mechanical Availability [%]	94.60	92.00	92.00	↑	Monthly	1/1/2004	
Total Number of Failures [# /Year]	45.00	57.00	60.00	↓	Monthly	1/1/2001	
Financial							
Operating Expense Optimization							
Total Failure Cost	655772.18	995742.63	1500000.00	↓	Monthly	1/1/2001	
Turnaround Maintenance Cost [MM\$/Year]	3.72	3.95	5.00	↓	Monthly	1/1/2003	
Routine Maintenance Cost [MM\$/Year]	22.00	25.00	22.00	↓	Monthly	1/1/2003	

In this example, the Scorecard uses a *Process* perspective and a *Financial* perspective. The objective for the Process perspective is to improve reliability, and the objective for the Financial perspective is to optimize operating expense. Mechanical availability and the total number of failures are used to measure whether the company is improving reliability, and turnaround maintenance cost, routine maintenance cost, and total failure cost are used to measure whether the company is optimizing its operating expense.

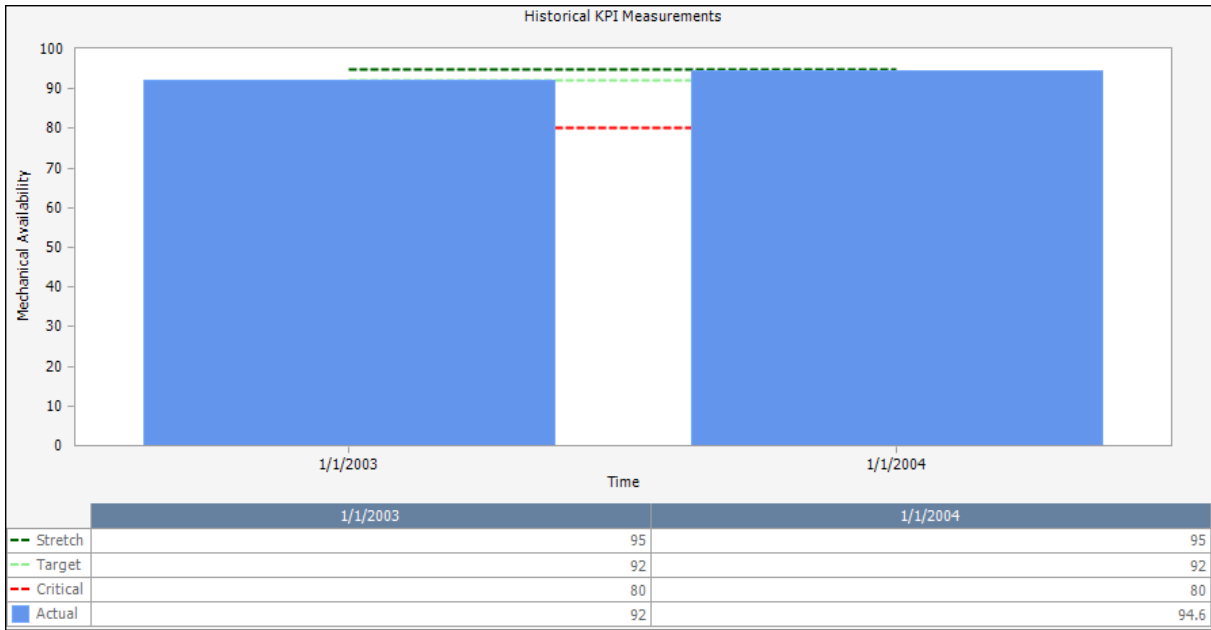
Note that the mechanical availability value has increased from the previous year, from 92.00 to 94.60. Therefore the Trend arrow is pointing up to indicate the increase. The actual value is highlighted in light green, which indicates that the value falls within the range of the Target value and the Stretch value. If you were to click the **Mechanical Availability** link, the **View KPI** page for the Mechanical Availability KPI would appear, showing the details of the KPI.

From the **View KPI** page, you could see the actual value of 94.60 reflected in the trend data and the dial. Notice that the actual value on the trend dial falls within the values shaded light green, which is the color used to highlight the actual value on the **View Scorecard** page.



Below the trend data, you can also see the previous value of 92.00 and the current value of 94.60.

Example of a Completed Scorecard on the View Scorecard Page



Accessing the Design Scorecard Page

From the **Design Scorecard** page, you can design a new Scorecard or modify the content of an existing Scorecard. The **Design Scorecard** page appears automatically when you [create a new Scorecard](#). The following instructions provide details on accessing the **Design Scorecard** page for an existing Scorecard.

To open an existing Scorecard on the Design Scorecard page:

1. On the [Scorecards page](#), in the list of Scorecard records, click the link associated with the Scorecard that you want to view.

The selected Scorecard appears on the [View Scorecard page](#).

	Actual	Previous	Target	Trend	Frequency
2005 Perspective					
2005 Objective					
AQA - 2008 Score Only-Max1	438865.17	577314.00	30000.00	↓	Monthly
AQA - 2008 Score Only-Max2	438865.17	577314.00	30000.00	↓	Monthly
AQA - 2008 Score Only-Max3	438865.17	577314.00	400000.00	↓	Monthly
AQA - 2008 Score Only-Min1	438865.17	577314.00	100000.00	↓	Monthly
AQA - 2008 Score Only-Min2	438865.17	577314.00	300000.00	↓	Monthly
AQA - 2008 Score Only-Min3	438865.17	577314.00	500000.00	↓	Monthly
AQA - 2008 Score Only-Avg1	438865.17	577314.00	90000.00	↓	Monthly
AQA - 2008 Score Only-Avg2	1317541.83	2185213.21	300000.00	↓	Monthly
AQA - 2008 Score Only-Avg3	438865.17	577314.00	300000.00	↓	Monthly
AQA - 2008 Score only KPI - Sum1	438865.17	577314.00	450000.00	↓	Monthly
AQA - 2008 Score only KPI - Sum2	438865.17	577314.00	450000.00	↓	Monthly
AQA - 2008 Score only KPI - Sum3	438865.17	577314.00	450000.00	↓	Monthly
AQA - 2008 Score Only-WT Avg1	0.00	0.00	300000.00	→	Monthly
AQA - 2008 Score Only-WT Avg2	438865.17	577314.00	300000.00	↓	Monthly
AQA - 2008 Score Only-WT Avg3	438865.17	577314.00	300000.00	↓	Monthly

2. On the **Scorecard** menu, click the **Designer** link.

The [Design Scorecard page](#) appears, displaying the content of the selected Scorecard.

The screenshot shows a web browser window titled "Meridium APM Framework - Design Scorecard - 2005 All Sales Scorecard". The browser's address bar shows the path: [Metrics->Scorecard->2005 All Sales Scorecard](#). The page header includes the Meridium logo and the text "Metrics and Scorecards".

The main content area is titled "Design Scorecard" and contains the following fields:

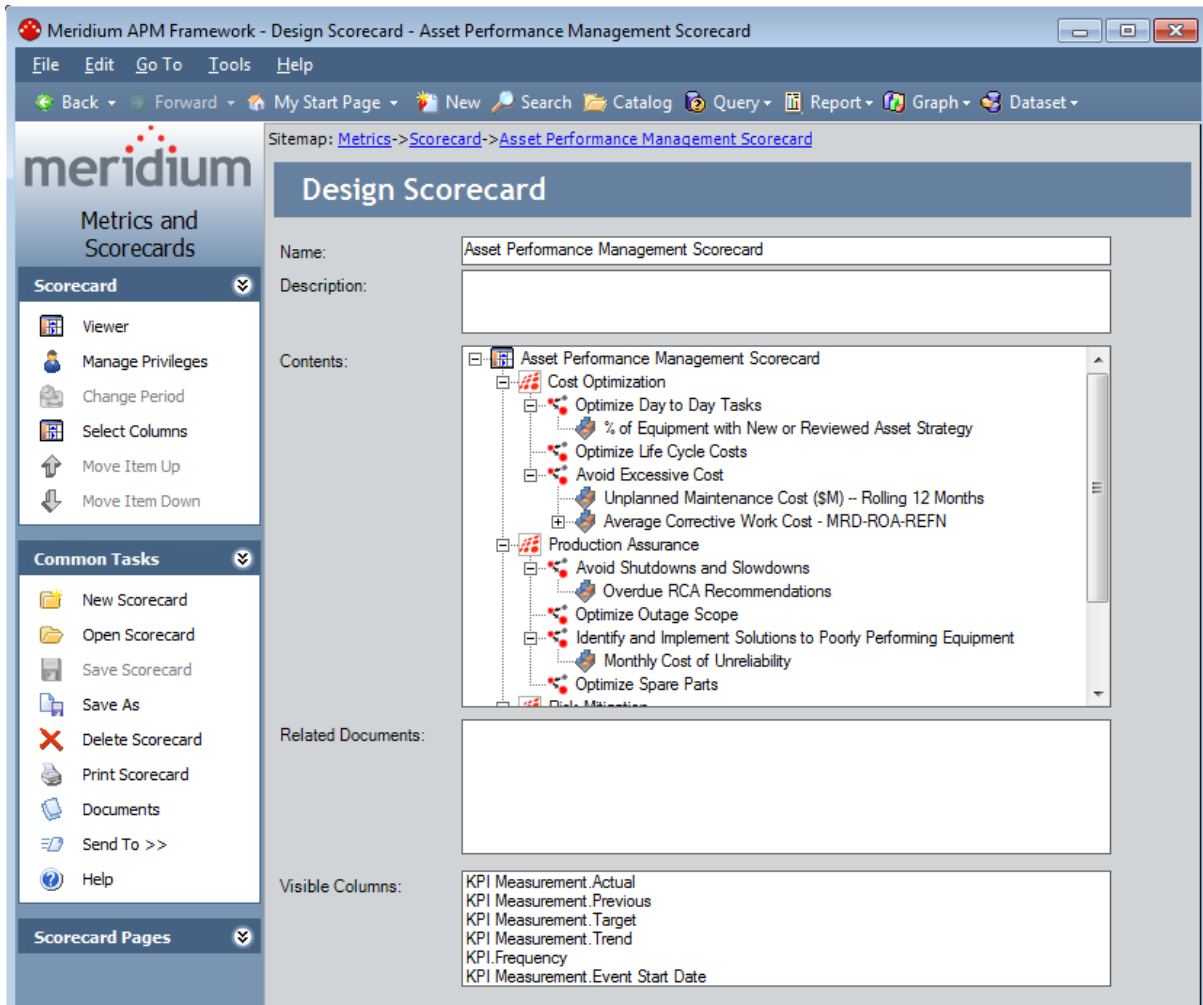
- Name:** 2005 All Sales Scorecard
- Description:** 2005 All Sales Scorecard
- Contents:** A tree view showing the hierarchy: 2005 All Sales Scorecard > 2005 Perspective > 2005 Objective > AQA - 2008 Score Only-Max1, AQA - 2008 Score Only-Max2, AQA - 2008 Score Only-Max3, AQA - 2008 Score Only-Min1, AQA - 2008 Score Only-Min2, AQA - 2008 Score Only-Min3, AQA - 2008 Score Only-Avg1, AQA - 2008 Score Only-Avg2, and AQA - 2008 Score Only-Avg3.
- Related Documents:** Test
- Visible Columns:** KPI Measurement.Actual, KPI Measurement.Previous, KPI Measurement.Target, KPI Measurement.Trend, KPI.Frequency, and KPI Measurement.Event Start Date.

A left-hand navigation pane titled "Metrics and Scorecards" contains two sections:

- Scorecard:** Viewer, Manage Privileges, Change Period, Select Columns, Move Item Up, Move Item Down.
- Common Tasks:** New Scorecard, Open Scorecard, Save Scorecard, Save As, Delete Scorecard, Print Scorecard, Documents, Send To >>, Help.

Aspects of the Design Scorecard Page

On the **Design Scorecard** page, you can design a new Scorecard or modify the design of an existing Scorecard.



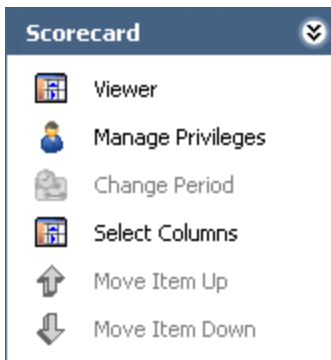
Using the **Design Scorecard** page, you can select the KPI Perspective records, KPI Objective records, and KPI records that you want to view in the Scorecard and attach reference documents to the Scorecard. The **Design Scorecard** page contains the following sections:

- **Name:** Contains the name of the Scorecard.
- **Description:** Contains a description of the Scorecard.
- **Contents:** Contains the perspectives, objectives, and KPIs that you define for the Scorecard. In the **Contents** section, you can add [KPI Perspective records](#), [KPI Objective records](#), and [KPI records](#); [remove contents from the Scorecard](#); [delete contents from the database](#); and [view the record for each perspective, objective, or KPI](#).

- **Related Documents:** Contains a list of reference documents associated with the Scorecard. To add documents to the list or view the documents already attached to the Scorecard, click the **Reference Documents** link on the **Common Tasks** menu.
- **Visible Columns:** Contains a list of the columns that will appear on the **View Scorecard** page.

You can sort the tree in the **Contents** section alphabetically by right-clicking anywhere in the tree and then clicking **Sort** on the shortcut menu. The sort command will sort ALL perspectives, objectives, and KPIs displayed in the pane (i.e., the sort operation is not limited to the branch that is currently selected). Note that the sort operation cannot be undone.

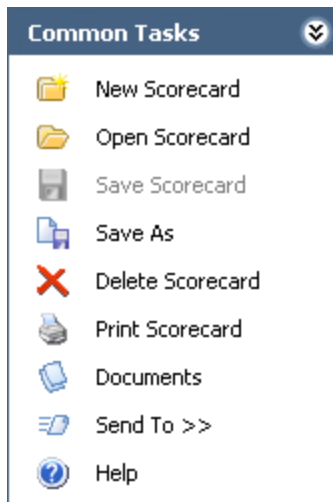
Scorecard Menu



The **Scorecard** menu on the **Design Scorecard** page contains the following links:

- **Viewer:** Displays the **View Scorecard** page.
- **Manage Privileges:** Displays the **Manage Privileges** window, where you can [select the users and groups who will have access to the selected Scorecard](#).
- **Change Period:** This link is disabled on the **Design Scorecard** page.
- **Select Columns:** Displays the **Select Visible Columns** dialog box, where you can [select columns to appear in the Scorecard on the View Scorecard page](#).
- **Move Item Up:** Moves the selected perspective, objective, or KPI up in the Contents list. This link is disabled when an item is at the top of the hierarchy in respect to similar items and cannot be moved up anymore.
- **Move Item Down:** Moves the selected perspective, objective, or KPI down in the Contents list. This link is disabled when an item is at the bottom of the hierarchy in respect to similar items and cannot be moved down anymore.

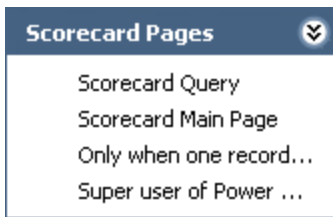
Common Tasks Menu



The **Common Tasks** menu on the **Design Scorecard** page contains the following links:

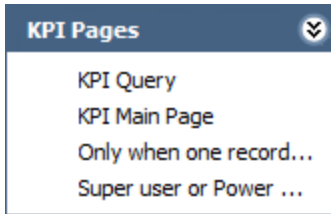
- **New Scorecard:** Displays a blank **Design Scorecard** page, where you can [create a new Scorecard record](#).
- **Open Scorecard:** Displays the **Scorecards** page, from which you can [select a Scorecard record to open](#).
- **Save Scorecard:** Saves the Scorecard record. If you are viewing an existing Scorecard, this link is disabled until you make a change to the Scorecard.
- **Save As:** Displays the **Save As** dialog box, where you can save the current Scorecard with a different name or in a different location.
- **Delete Scorecard:** Displays a confirmation message, and then deletes the Scorecard record. This link is disabled until you save the Scorecard.
- **Print Scorecard:** Displays the **Print** dialog box, where you can print the Scorecard.
- **Documents:** Displays the reference documents associated with the Scorecard record. This link is disabled until you save the Scorecard.
- **Send To:** Displays a submenu with options that let you provide a link to the current page on your desktop (create shortcut), in an email message, or on a Home Page. If you are creating a new Scorecard record, this link is disabled until you save the Scorecard record.
- **Help:** Displays the context-sensitive Help topic for the **Design Scorecard** page.

Scorecard Pages Menu



The **Scorecard Pages** menu on the **Design Scorecard** page contains the Associated Pages that have been configured for the Scorecard family.

KPI Pages Menu



The **KPI Pages** menu on the **Design Scorecard** page contains the Associated Pages that are configured for the KPI family that is associated with the node selected in the **Contents** field. The menu is dynamic, so its label and links change as you select different nodes in the **Contents** field.

- When you select a KPI Perspective node, the menu is labeled **KPI Perspective Pages** and displays the Associated Pages that are defined for the KPI Perspective family.
- When you select a KPI Objective node, the menu is labeled **KPI Objective Pages** and displays the Associated Pages that are defined for the KPI Objective family.
- When you select an KPI node, the menu is labeled **KPI Pages** and displays the Associated Pages that are defined for the KPI family.

Note that the **KPI Pages** menu does not appear when no node or the Scorecard node is selected in the **Contents** tree.

About Designing a Scorecard

On the **Design Scorecard** page, you can design a new Scorecard or modify the design of an existing Scorecard by:

- Adding the following contents to a Scorecard:
 - [Perspectives](#)
 - [Objectives](#)
 - [KPIs](#)
- [Removing contents from a Scorecard](#) while keeping the records in the database for use with other Scorecards.
- [Deleting contents from a Scorecard](#) and removing the records from the database.
- [Modifying the data associated with contents of a Scorecard](#).
- [Selecting columns to include in a Scorecard](#).
- [Renaming a Scorecard](#).


Renaming a Scorecard

To rename a Scorecard:

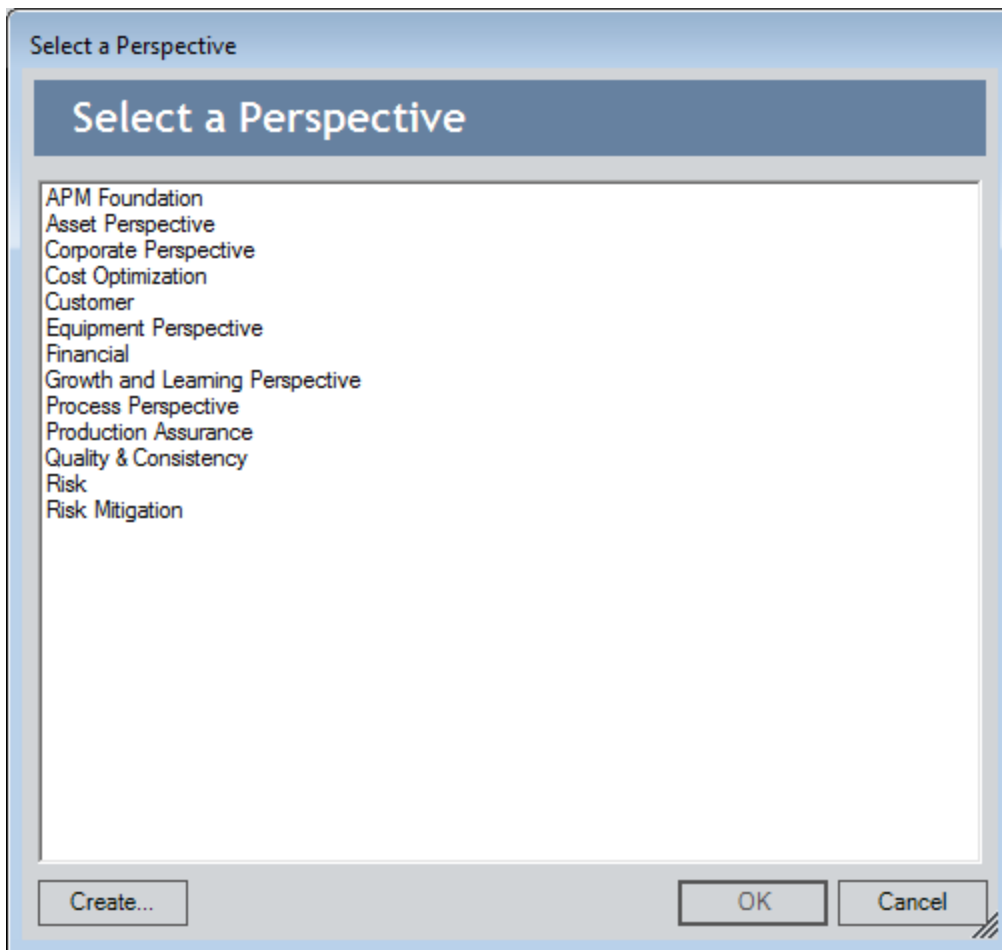
1. On the **Design Scorecard** page, type a new name in the **Name** field.
2. On the **Common Tasks** menu, click the **Save** link to save the Scorecard record with the new name.

Adding an Existing Perspective

To add an existing perspective to a Scorecard:

1. On the **Design Scorecard** page, in the **Contents** section, right-click the Scorecard icon , and then click **Add Perspective**.

The **Select a Perspective** window appears, displaying a list of existing KPI Perspective records.




2. Select a KPI Perspective record from the list, and click **OK**.

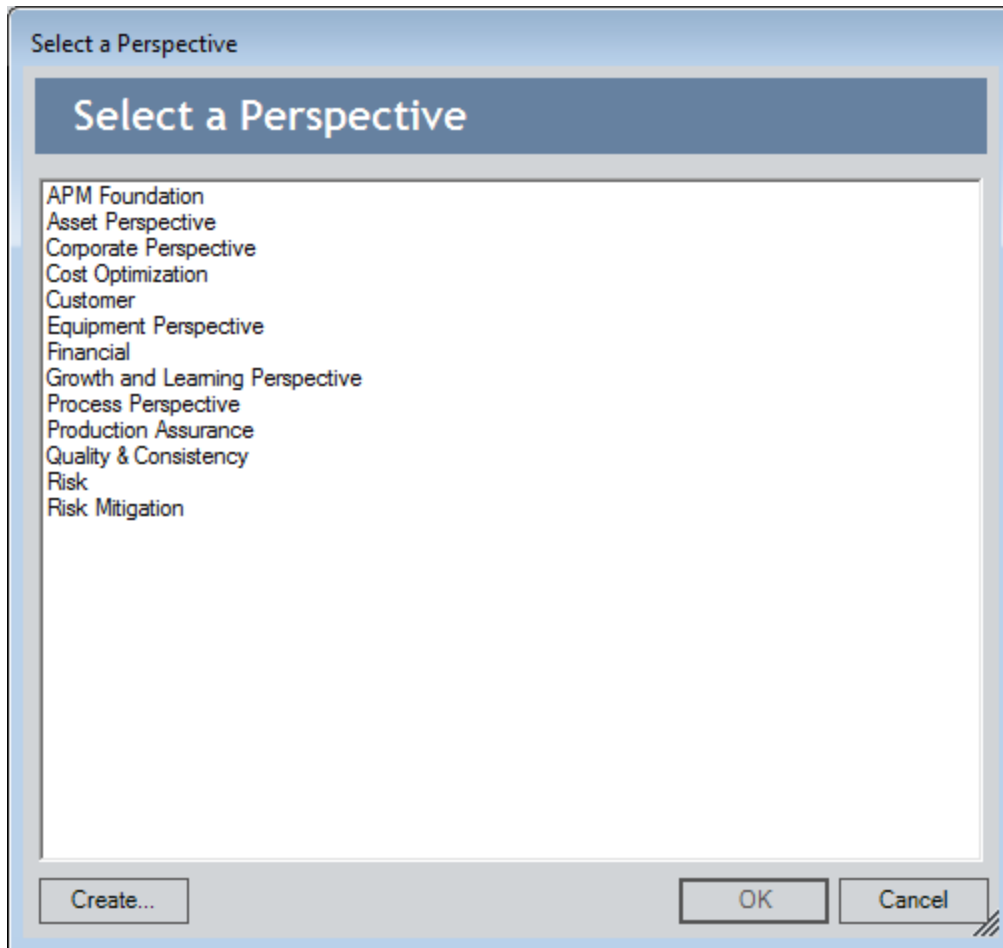
The perspective is added to the **Contents** list.

Creating a New Perspective

To create a new perspective and add it to a Scorecard:

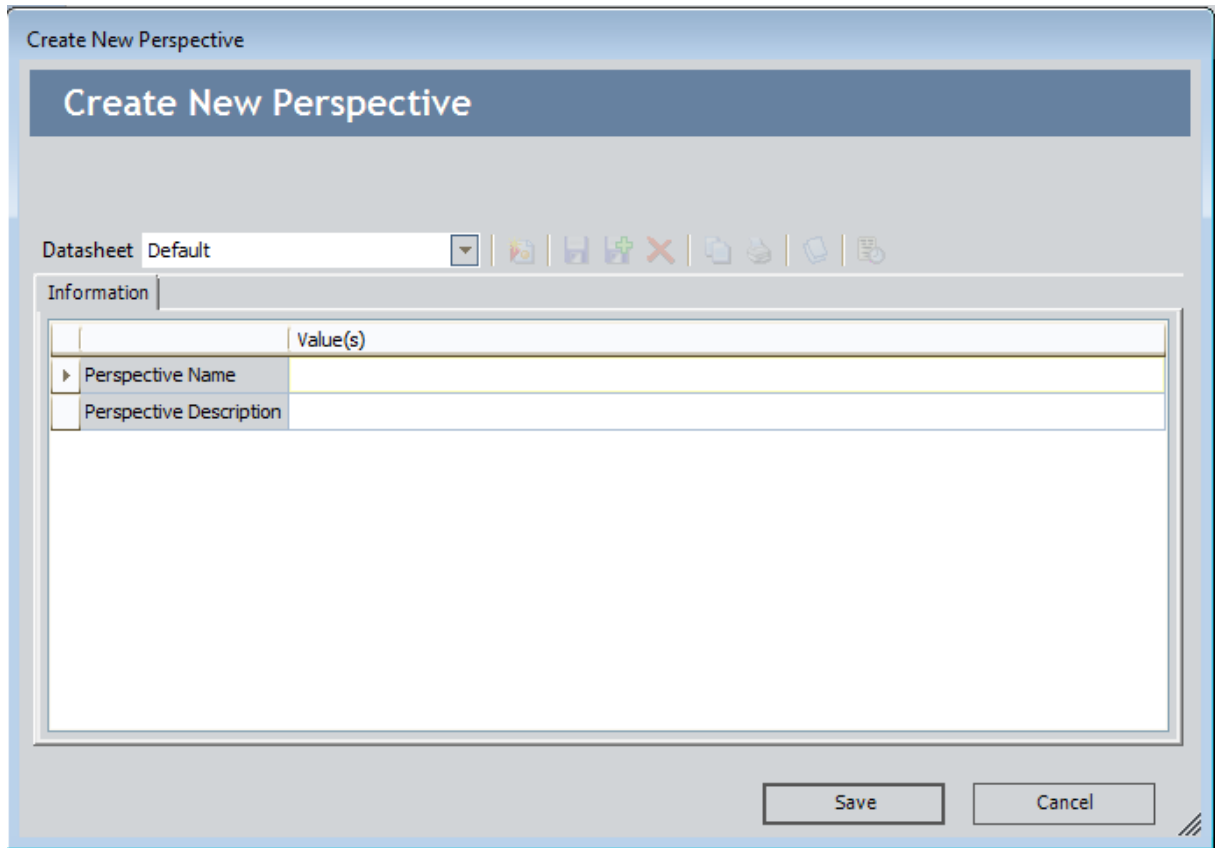
1. On the **Design Scorecard** page, in the **Contents** section, right-click the Scorecard icon , and then click **Add Perspective**.

The **Select a Perspective** window appears, displaying a list of existing KPI Perspective records.



2. Click the **Create** button.

The **Create New Perspective** window appears, displaying a datasheet where you can type a name and description for the perspective.



3. In the **Perspective Name** text box, type a name for the new perspective.
4. In the **Perspective Description** text box, type a description for the new perspective, if desired.
5. Click the **Save** button.

The new KPI Perspective record is added to the list on the **Select a Perspective** window.

6. Select the new KPI Perspective record, and click **OK**.

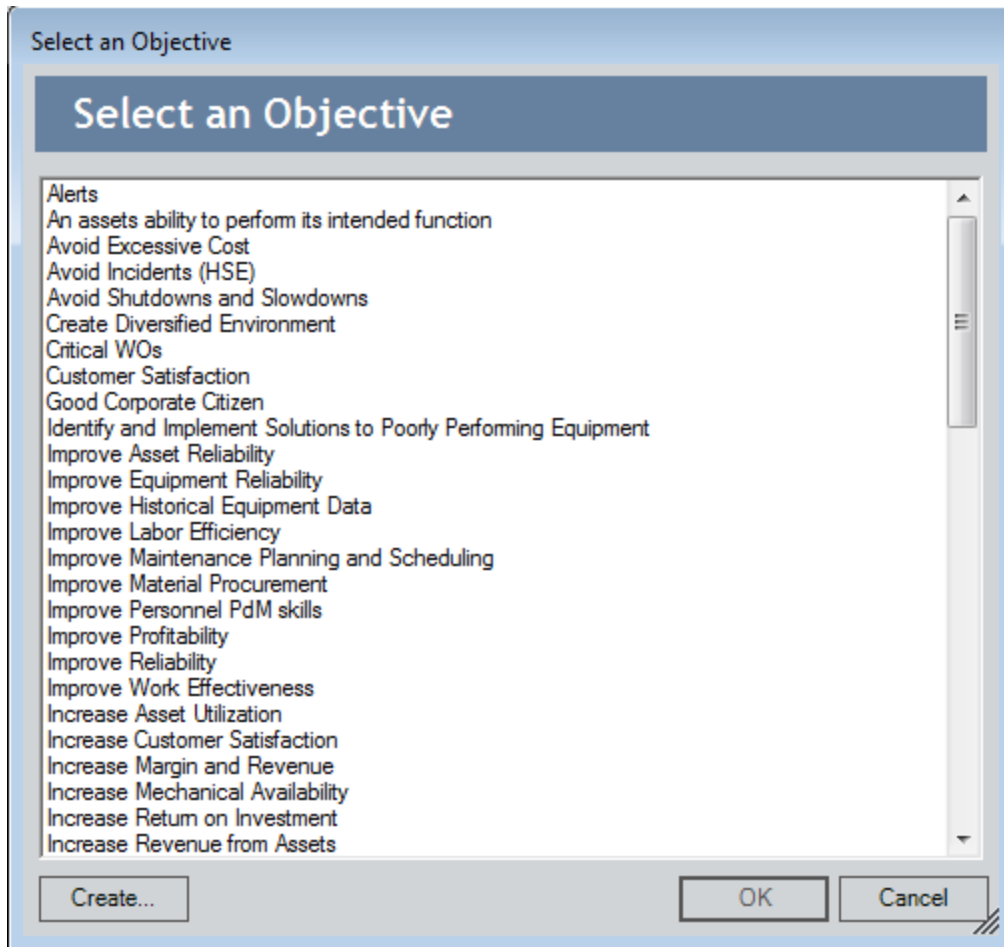
The perspective is added to the **Contents** list.

Adding an Existing Objective

To add an existing objective to a Scorecard:

1. On the **Design Scorecard** page, in the **Contents** section, right-click a perspective, and then click **Add Objective**.

The **Select an Objective** window appears, displaying a list of existing KPI Objective records.



2. Select a KPI Objective record from the list, and click **OK**.

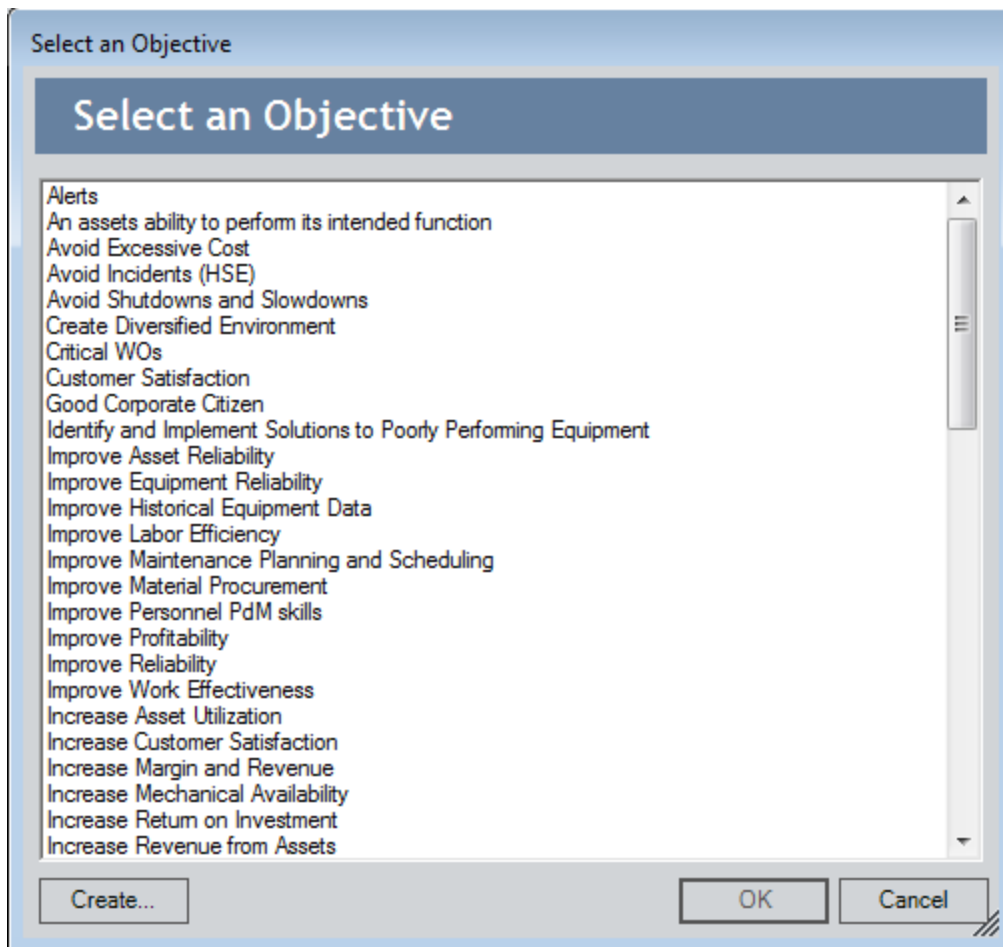
The objective is added to the **Contents** list.

Creating a New Objective

To create a new objective and add it to a Scorecard:

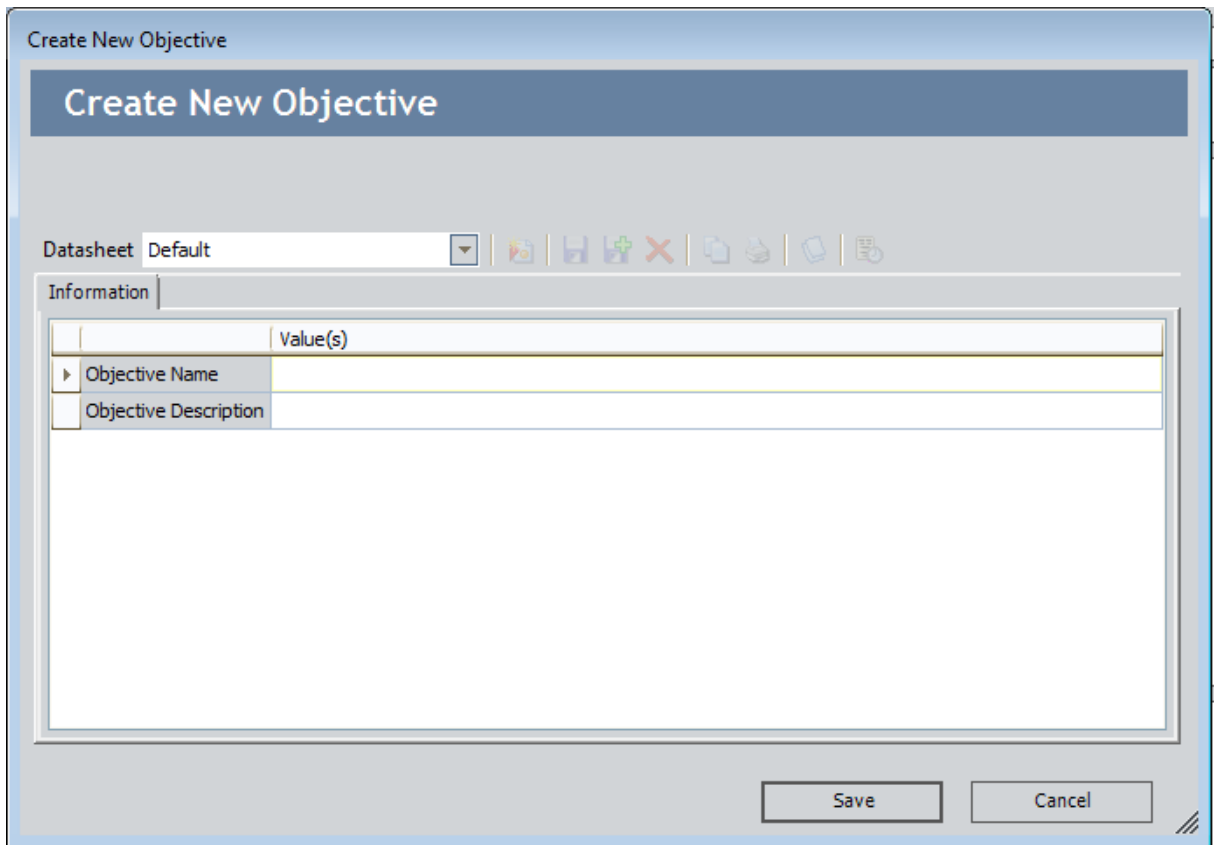
1. On the **Design Scorecard** page, in the **Contents** section, right-click a perspective, and then click **Add Objective**.

The **Select an Objective** window appears, displaying a list of existing KPI Objective records.



2. Click the **Create** button.

The **Create New Objective** window appears, displaying a datasheet where you can type a name and description for the objective.



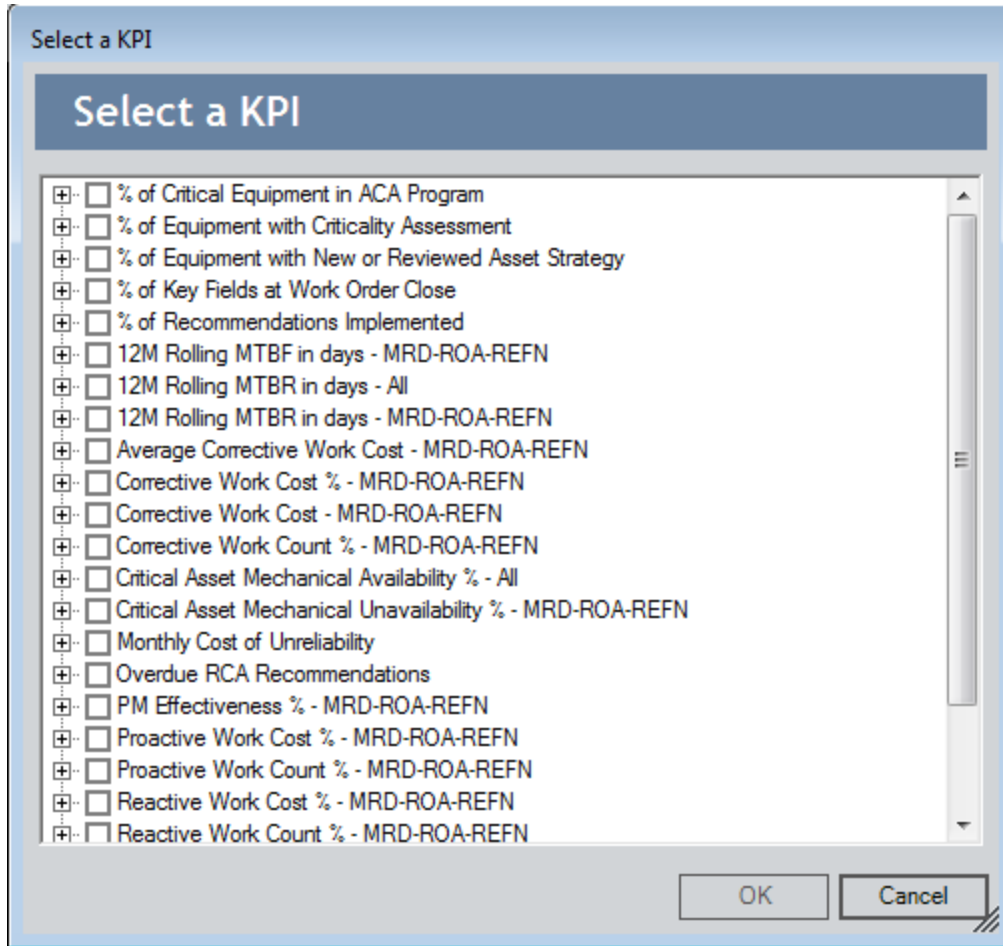
3. In the **Objective Name** text box, type a name for the new objective.
4. In the **Objective Description** text box, type a description for the new objective, if desired.
5. Click the **Save** button.
The new KPI Objective record is added to the list on the **Select a Perspective** window.
6. Select the KPI Objective record, and click **OK**.
The objective is added to the **Contents** list.

Adding a KPI

To add a KPI to a Scorecard:

1. On the **Design Scorecard** page, in the **Contents** section, right-click an objective, and then click **Add KPI**.

The **Select a KPI** window appears, displaying a list of existing KPI records.



2. Select any of the KPI records from the list, and click **OK**.

The KPI is added to the **Contents** list.

Removing Contents from a Scorecard

When you remove contents from a Scorecard, the record remains in the database for use with other Scorecards.

To remove contents from a Scorecard:

- On the **Design Scorecard** page, in the **Contents** section, right-click the perspective, objective, or KPI that you want to remove, and click **Remove**.

The selection is removed from the Scorecard, but the record remains in the database and is available for use with other Scorecards.

Deleting Content from a Scorecard

When you delete content from a Scorecard, you delete the record from the database. You cannot delete a record that is being used by another Scorecard.

To delete content from a Scorecard:

1. On the **Design Scorecard** page, in the **Contents** section, right-click the perspective, objective, or KPI to be deleted, and click **Delete**.


A confirmation message appears, asking if you are sure you want to permanently delete the selection.

2. Confirm the deletion by clicking the **Yes** button.

The selected record is deleted from the database.


Modifying the Record Associated with Scorecard Contents

You can access the record associated with Scorecard contents from the **Design Scorecard** page and the **View Scorecard** page. These instructions assume that you are viewing the Scorecard on the **Design Scorecard** page. Note that if you use the right-click and **Rename** option, which is available on the shortcut menu in the **Contents** section, the name of the item will be changed in the tree view only. The name stored with the item can be changed only by performing the steps in the following instructions.

 **Note:** You can also modify Scorecard contents via the Record Manager.

To modify the data associated with Scorecard contents:

1. On the **Design Scorecard** page, in the **Contents** section, right-click the desired perspective, objective, or KPI, and click **View**.

If you selected a perspective or an objective, the associated datasheet appears in a separate window. Note that the icons associated with the datasheet, such as the delete icon , are disabled. If you selected a KPI, the [KPI Editor page](#) appears, displaying the selected KPI.

2. Modify the information as desired, and click the **Save** link on the **Common Tasks** menu.

The selected record is modified and saved to the database.

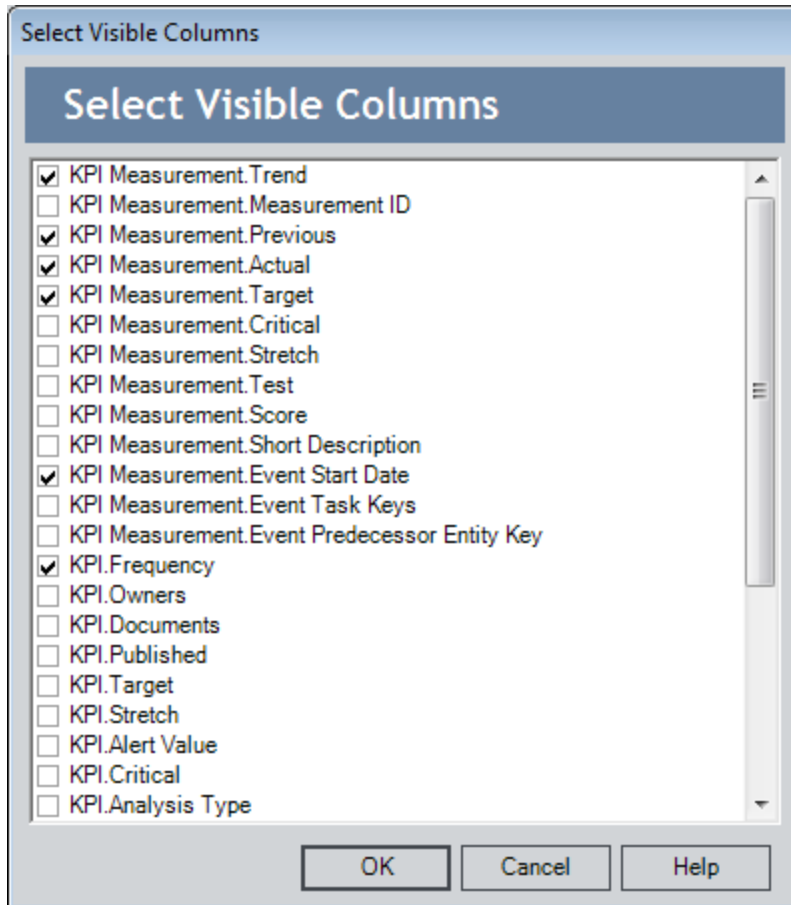
Selecting Columns to Include in a Scorecard

From the **View Scorecard** or **Design Scorecard** page, you can select the columns that you want to see on the Scorecard.

To select columns to include in a Scorecard:

1. On the **Design Scorecard** page or the **View Scorecard** page, on the **Scorecard** menu, click the **Select Columns** link.

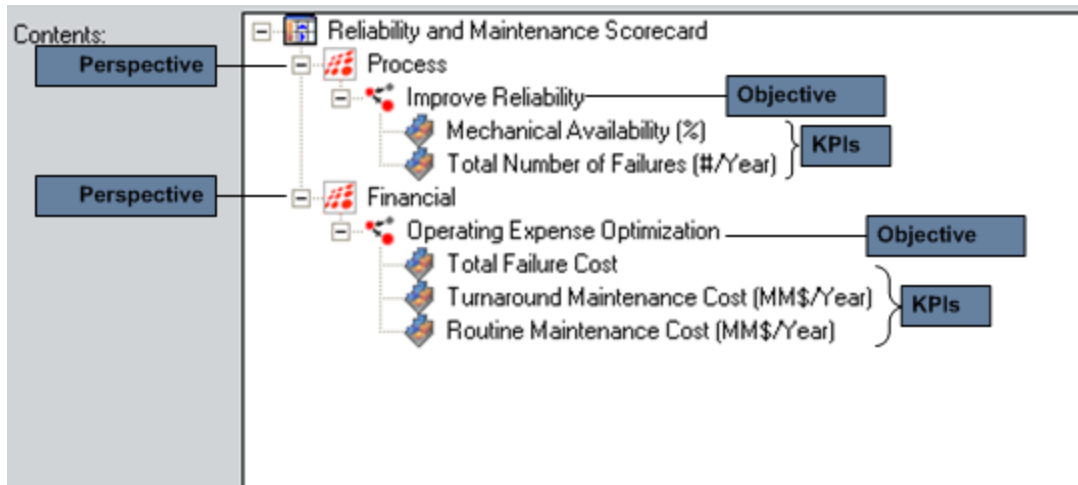
The **Select Visible Columns** dialog box appears.



2. Select the check boxes next to the options in the list that you want to include as columns. The values for the columns will be calculated in the Scorecard.
3. Click **OK**.

Example of a Completed Scorecard on the Design Scorecard Page

The following image shows an example of a completed Scorecard on the **Design Scorecard** page, including labels to indicate the perspectives, objectives, and KPIs.



In this example, the Reliability and Maintenance Scorecard is using a Process perspective to reach the objectives, or goal, of improving reliability, and a financial perspective to reach another objective of optimizing operating expense. The company is using mechanical availability and the total number of failures to measure whether it is meeting its objective of improving reliability. The company is also measuring its ability to meet the goal of optimizing operating expenses using turnaround maintenance cost, routine maintenance cost, and total failure cost.

Deleting a Scorecard

To delete a Scorecard:

- On the [Scorecards page](#), select the row containing the Scorecard record you want to delete, and click the **Delete** link on the **Common Tasks** menu.

-or-

On the **Design Scorecard** page or the **View Scorecard** page, click the **Delete** link on the **Common Tasks** menu. Note that you must save the Scorecard record before the **Delete** link will be enabled.

The Scorecard record is deleted from the database.

KPI

KPI records store basic information about Key Performance Indicators. The following table provides an alphabetical list and description of the fields that exist for the KPI family. The information in the table reflects the baseline state and behavior of these fields. This list is not comprehensive.

Field	Data Type	Description	Behavior and Usage	Datasheet
Alert Distribution List	Text	The Security Users who have been designated to receive alerts from this KPI.	This field is populated automatically with the names of the recipients you defined in the Alert Configuration dialog box when you created an alert.	This field is not on a datasheet by default.
Alert Message	Character	The text of the email message sent to a user when an alert is triggered.	This field is populated automatically with the text you defined in the Alert Configuration dialog box when you created an alert.	Default: Alerts Tab

Field	Data Type	Description	Behavior and Usage	Datasheet
Alert Value	Number	The value that a KPI must meet in order to trigger an alert message.	This field is automatically populated with the number you defined in the Alert Configuration dialog box when creating an alert. When the KPI reaches this value, the text in the Alert Message field is sent in an email message to the users identified in the Alert Distribution List field.	Default: Alerts Tab
Best Value	Number	The optimal output level.	This field is automatically populated with the value you entered on the Specify Limits screen of the KPI Builder . This value is used to calculate the normalized score that is assigned to the KPI when it is created.	KPI Editor

Field	Data Type	Description	Behavior and Usage	Datasheet
Critical	Number	The output value that indicates that the KPI has reached a low performance level and is not reaching its potential target.	This field is populated automatically with the value you entered on the Specify Limits screen of the KPI Builder .	Default: Defaults Tab, KPI Editor
Description	Character	A brief description of the KPI.	You can type a description of the KPI into this field manually.	Default: Identification Tab, KPI Editor
End Date	Date	The date the KPI stopped being measured.	This field is populated automatically with the end date you chose on the KPI Time Span screen in the KPI Builder .	Default: Identification Tab, KPI Editor
Has Score Only	Logical	Indicates whether the Score is the only value displayed on the Trend Chart.	If this field is set to <i>True</i> , the KPI's Actual, Target, Critical and Stretch values are not displayed on the Trend Chart or Trend Data. Instead, only the Score will be displayed for that KPI by aggregating scores of its sub-indicators using the selected aggregation function.	KPI Editor

Field	Data Type	Description	Behavior and Usage	Datasheet
KPI Schedule	Text	Information about the KPI schedule and how frequently to update measurements over a period of time.	This field stores the schedule information that you define via the KPI Update Schedule dialog box. This field indicates to the master scheduled item in Schedule Manager whether or not the KPI should be updated. If the KPI is not scheduled as a recurring item, after successful completion, this value in this field will be deleted.	This field is not on a datasheet by default.
Last Measure Update	Date	The date the KPI measurements were last updated.	If the KPI is successfully executed, this value is populated automatically with the current date.	This field is not on a datasheet by default.
Name	Character	The name of the KPI.	You can type a name for the KPI into this field manually.	Default: Identification Tab, KPI Editor
Published	Logical	Indicates whether the KPI has been published.	If the KPI has been published, this value is set to <i>True</i> .	Default: Identification Tab

Field	Data Type	Description	Behavior and Usage	Datasheet
Recursive Update	Logical	Indicates whether the KPI has been scheduled to update once or recursively.	If the KPI is scheduled to recursively, this value is set to <i>True</i> . The master KPI scheduled item will continue to update this KPI at the specified frequency.	This field is not on a datasheet by default.
Schedule Last Run Date	Date	The most recent date that a KPI was updated by a scheduled update.	If the KPI is scheduled as a recurring item, after successful execution, this value is populated automatically with the current date.	This field is not on a datasheet by default.
Schedule Next Run Date	Date	The next date that a KPI is scheduled to take place.	If the KPI is scheduled as a recurring item, after successful execution, this value is populated automatically with the next scheduled run date based on the KPI's schedule frequency. If the KPI is not scheduled as a recurring item, this field is not populated with a value.	This field is not on a datasheet by default.

Field	Data Type	Description	Behavior and Usage	Datasheet
Start Date	Date	The date the KPI began being measured.	This value is populated automatically with the start date you chose on the KPI Time Span screen in the KPI Builder .	Default: Identification Tab, KPI Editor
Stretch	Number	The output value that is much higher than a target value, demanding a breakthrough performance.	This field is automatically populated with the value you entered on the Specify Limits screen of the KPI Builder .	Default: Defaults Tab, KPI Editor
Target	Number	The output value that is your aim for the KPI measurement at a given time.	This field is automatically populated with the value you entered on the Specify Limits screen of the KPI Builder .	Default: Defaults Tab, KPI Editor
Worst Value	Number	The output value that should be strictly avoided.	This field is automatically populated with the value you entered on the Specify Limits screen of the KPI Builder . This value is used to calculate the normalized score that is assigned to the KPI when it is created.	KPI Editor

URL Paths for Metrics and Scorecards

The following table lists and describes the paths for accessing features in the Metrics and Scorecards module. Note that to construct a valid URL, you must prepend **meridium://** to the path. In some cases, you must define parameters following the path.

Feature	Path	Description
Metrics Start Page	Metrics	Displays the Metrics Manager Start Page . This URL does not accept any parameters.
Metrics Administration	Metrics/Admin	Displays the Metrics Manager Administration page, where you can manage cubes.
Design page	Metrics/Designer	Opens the specified cube on the Design page. This URL accepts a parameter that lets you specify which Metric View to open.
Linked Views	Metrics/LinkedViews	Opens the Linked Views for the specified Metric View. This path accepts one parameter that lets you specify the Metric View for which to display linked Views.
Results for <Metric View> page	Metrics/Results	Opens the specified Metric View on the Results for <Metric View> page. This path accepts parameters that let you specify which Metric View to open and which information to display.
Drill Through page	Results/DrillThrough	Opens the specified Metric View on the Drill Through page. This path accepts parameters that let you specify which Metric View to open and which information to display.
Manage Scorecards	Scorecard	Displays the Scorecards page. This path does not accept any parameters.
Scorecard Designer	Scorecard/Design	Displays the Design Scorecard page for the specified scorecard. This path accepts a parameter that lets you specify which scorecard to open.
Scorecard Viewer	Scorecard/View	Displays the View Scorecard page for the specified scorecard. This path accepts a parameter that lets you specify which scorecard to open.

Feature	Path	Description
Manage KPIs	Scorecard/KPI	Serves as the path for providing access to the Manage KPIs functionality. The path accepts parameters that let you customize the URL.

Parameters for the Design Page URL

The **Design** page URL lets you construct a hyperlink that will open a Metric View on the **Design** page. The base URL, `meridium://Metrics/Designer`, accepts one parameter that lets you specify which cube to open on the **Design** page.

Parameter Name	Description	Accepted Value(s)	Notes
CubeView	Specifies the Metric View that you want to open on the Design page.	The Entity Key of the Metric View that you want to open.	This parameter is required.

Examples of the Design Page URL

- `meridium://Metrics/Designer?CubeView=1234567`

Opens the Metric View with the Entity Key 1234567 on the Metrics **Design** page.

Parameters for the Results for <Metric View> Page URL

The URL for the Metrics **Results for <Metric View>** page, `meridium://Metrics/Results`, accepts the parameters described in the following table. This URL lets you construct a hyperlink that will open a Metric View on the **Results for <Metric View>** page.

Parameter Name	Description	Accepted Value(s)	Notes
CubeView	Specifies the Metric View that you want to access.	The Entity Key of the Metric View that you want to access.	You must define either the CubeView parameter or the Path parameter to specify which Metric View you want to open.
Mode	Specifies whether to display the Table tab or the Graph tab on the Results for <Metric View> page.	0 1	A value of 0 (zero) will display the Graph tab. A value of 1 (one) will display the Table tab. Note that if you omit this parameter, the Graph tab will be displayed by default.
Path	Specifies the Metric View that you want to access.	The Catalog path and file name of the Metric View that you want to open.	You must define either the Path parameter or the CubeView parameter to specify which Metric View to open.
Slices	Specifies which slices you want to apply to the Metric View.	The desired slice. The values for the Slices parameter use the syntax [A].[B].[C]... to indicate the slice dimension in the cube hierarchy. See the examples for more information.	You can specify multiple values for the Slices parameter, separating each with a comma. Note that you can use the Slices parameter to apply to a cube slices that are not saved with the Metric View itself.

Examples of the Results for <Metric View> Page URL

- **meridium://Metrics/Results?CubeView=1234567**
Opens the Metric View identified by the Entity Key 1234567 on the **Results for <Metric View>** page. The **Graph** tab is selected by default.
- **meridium://Metrics/Results?CubeView=1234567&Mode=1**
Opens Metric View 1234567 on the **Results for <Metric View>** page, where the **Table** tab is selected by default.
- **meridium://Metrics/Results?CubeView=1234567&Slices=[Customers].[All Customers].[USA].[WA],[Yearly Income].[All Yearly Income].[\$10K - \$30K]**
Opens Metric View 1234567 on the **Results for <Metric View>** page, and applies the slices Slices=[Customers].[All Customers].[USA].[WA] and [Yearly Income].[All Yearly Income].[\$10K - \$30K].
- **meridium://Metrics/Results?Path=Public\Meridium\Modules\Metrics Manager\Pump Failures**
Opens on the **Results for <Metric View>** page the Pump Failures View, which is stored in the Catalog folder \\Public\Meridium\Modules\Metrics Manager.

Parameters for the Drill Through Page URL

The URL for the **Drill Through** page, `meridium://Metrics/DrillThrough`, accepts parameters that let you specify which View to open and which information to display.

Parameter Name	Description	Accepted Value(s)	Notes
CubeViewDrillThrough	Specifies the Metric View whose Drill Through results you want to access.	The Entity Key of the Metric View that you want to access.	This parameter is required. You must define the <code>CubeViewDrillThrough</code> parameter and the <code>Page</code> parameter to specify where to open the Metric View.
Page	Specifies the page that you want to access.	Drill Through	This parameter is required. You must define the <code>Page</code> parameter and the <code>CubeViewDrillThrough</code> parameter to specify where to open the Metric View.
MemberCollection	Specifies the members whose Drill Through results you want to access.	The desired members. The values for the <code>MemberCollection</code> parameter use the syntax <code>[A].[B].[C]...</code> to indicate the member dimension in the cube hierarchy. See the examples for more information.	This parameter is required. You can specify multiple values for the <code>MemberCollection</code> parameter, separating each with a period.

Example of the Drill Through Page URL

- `meridium://METRICS/RESULTS/DRILLTHROUGH?Page-e=DrillThrough&CUBEVIEWDRILLTHROUGH=64251796271&MemberCollection=[Measures].[Internet Sales-Sales Amount],[Employee],[Department Name].[All Employees]`

Opens the **Drill Through** page, displaying the Drill Through results for the specified Metric View and members.

Parameters for the Linked Views URL

The URL for the **Linked Views** page, `meridium://Metrics/LinkedViews`, accepts a parameter that lets you specify the Metric View for which you want to access the **Linked Views** page.

Parameter Name	Description	Accepted Value(s)	Notes
Path	Specifies the View for which you want to access the Linked Views page.	The Catalog path and file name of the View for which to access linked views.	This parameter is required.

Examples of the Linked Views URL

- `meridium://Metrics/LinkedViews?Path=Public\Meridium\Modules\Metrics Manager\Pump Failures`

Displays the **Linked Views** page for the Pump Failures View, which is stored in the Catalog folder `\\Public\Meridium\Modules\Metrics Manager`.

Parameters for the Scorecard Designer URL

The URL for the **Design Scorecard** page, `meridium://Scorecard/Design`, accepts the parameter described in the following table.

Parameter Name	Description	Accepted Value(s)	Notes
EntityKey	Specifies which Scorecard you want to open.	The Entity Key of the desired Scorecard.	This parameter is required.

Examples of the Scorecard Designer URL

- `meridium://Scorecard/Design?EntityKey=2775406`

Opens in the **Design Scorecard** page the Scorecard with the Entity Key 2775406.

Parameters for the Scorecard Viewer URL

The URL for the **View Scorecard** page, `meridium://Scorecard/View`, accepts the parameter described in the following table.

Parameter Name	Description	Accepted Value(s)	Notes
EntityKey	Specifies which Scorecard you want to open.	The Entity Key of the desired Scorecard.	This parameter is required.

Examples of the Scorecard Viewer URL

- `meridium://Scorecard/View?EntityKey=2775406`

Opens in the **View Scorecard** page the Scorecard with the Entity Key 2775406.

Parameters for the Manage KPIs URL

The URL for the Manage KPIs functionality, `meridium://Scorecard/KPI`, accepts the parameters described in the following table. Note that a link constructed from the path alone will open the **Key Performance Indicators** page, which displays a list of all the KPIs in the database.

Parameter Name	Description	Accepted Value(s)	Notes
EntityKey	Specifies the KPI that you want to open.	The Entity Key of the KPI that you want to view.	This parameter can be used in conjunction with either the Page or Image parameter. Used alone, this parameter will simply limit the list of KPIs displayed on the Key Performance Indicators page.
Image	Specifies to display the KPI dial, trend chart, or trend data for the specified KPI.	Dial Trend Data	This parameter should be used in conjunction with the EntityKey parameter, which specifies the KPI whose dial you want to view. This parameter is unique in that <i>it does not create a standard link</i> . Rather, it displays the image of the actual KPI component, which is linked to the KPI itself. This URL is useful for displaying on a Home Page the image of a KPI component, which will provide access to the associated KPI.
Page	Specifies whether to display the specified KPI in view or edit mode.	View Edit	This parameter should be used in conjunction with the EntityKey parameter, which specifies which KPI you want to view or edit.

Examples of the Manage KPIs URL

- [meridium://Scorecard/KPI](#)
Opens the **Key Performance Indicators** page, which displays a list of all the KPIs that exist in the database.
- [meridium://Scorecard/KPI?Page=View&EntityKey=1234567](#)
Opens the KPI identified by the Entity Key 1234567 in the **View KPI** page.
- [meridium://Scorecard/KPI?Page=Edit&EntityKey=1234567](#)
Opens the KPI identified by the Entity Key 1234567 in the **KPI Editor** page.
- [meridium://Scorecard/KPI?EntityKey=1234567&Image=Dial](#)
Displays an image of the meter for the KPI identified by the Entity Key 1234567. Clicking the dial image will display the associated KPI on the **View KPI** page.

Slice

A filter that allows you to specify a subset of data that you want to analyze. Slices can be added to a Metric View to filter the data that is displayed so that a more specific subset of data can be examined.